
JOURNAL

OF THE

ARNOLD ARBORETUM

VOLUME IX

JULY, 1928

NUMBERS 2 & 3

ENUMERATION OF THE LIGNEOUS PLANTS COLLECTED BY J. F. ROCK ON THE ARNOLD ARBORETUM EXPEDITION TO NORTHWESTERN CHINA AND NORTHEASTERN TIBET¹

ALFRED REHDER AND ERNEST H. WILSON

Plates 12 and 13

ULMACEAE

Determined by A. REHDER

Ulmus pumila Linnaeus, Spec. 226 (1753).—Planchon in De Candolle, Prodr. xvii. 159 (1873).—Schneider in Sargent, Pl. Wilson. iii. 242 (1916), with full citation of literature and synonyms.—Chun, Chin. Econ. Trees, 108, t. 40 (1923).

SOUTHWESTERN KANSU. Tao River Basin: beyond Pi kou, along river, alt. 900 m., no. 12089, April 1925 (tree 6 m.).

NORTHWESTERN KANSU: Richthofen range and adjacent region: rocky gorge, opposite He yo tung, Liyüanku, no. 13324, Nov. 1925 (tree 18–24 m. tall, with large trunk, spreading crown and ascending branches; common at foot of Nanshan).

Celtis Bungeana, Blume, Mus. Bot. Lugd.-Bat. ii. 71 (1852).—Planchon in De Candolle, Prodr. xvii. 171 (1873).—Schneider in Sargent, Pl. Wilson. iii. 269 (1916), with full citation of literature and synonyms.

CENTRAL KANSU. Lien ho a shan: alt. 2750 m., no. 13503, Oct. 1925 (tree 18–24 m. tall, trunk 90 cm. diam.; fruit black).

Zelkova sinica Schneider in Sargent, Pl. Wilson. iii. 286 (1916).—Rehder in Jour. Arnold Arb. iv. 172 (1923).

SOUTHERN KANSU: beyond Pi kou on banks of Wen hsien ho, no. 12078, April 1925 (shrub 1.20 m. tall).

MORACEAE

Determined by A. REHDER

Ficus Baileyi Hutchinson in Bailey, Gent. Herb. I. 19, fig. 4 B, C (1920).

NORTHEASTERN YUNNAN: near Laoyatan, alt. 900 m., no. 12006, Jan. 1925 (pendent shrub).

¹ Continued from p. 27.

URTICACEAE

Determined by A. REHDER

Debregeasia longifolia Weddell in De Candolle, Prodr. xvi. pt. i. 235²⁴ (1869).—Schneider in Sargent Pl. Wilson. iii. 313 (1916), with full citation of literature and synonyms.

WESTERN SZECHUAN: gorge along the Fukiang, north of Kiang yu, alt. 1200 m., no. 12022, March 1925 (shrub 1.2 m.).

From typical *D. longifolia* this specimen differs in the slight appressed pubescence of the branchlets and in the leaves being glabrescent above and in this respect resembles *D. edulis* Wedd. from Japan.

LORANTHACEAE

Determined by A. REHDER

Loranthus europaeus Jacquin, Enum. Stirp. Vindob. 230, t. 3 (1762).—Beck in Reichenbach, Icon. Fl. Germ. xxiv. 4, t. 142 (1900).—Rehder in Jour. Arnold Arb. iv. 178 (1923).

SOUTHWESTERN KANSU. Lower Tebbu country: in Ma-yaku, alt. 2300 m., no. 14750, Sept. 5, 1926.

Though this species has a wide distribution, it seems to be very rare in central and eastern Asia.

POLYGONACEAE

Determined by A. REHDER

Polygonum Auberti L. Henry in Rev. Hort. 1907, 82, fig. 23, 24.—Schneider in Sargent, Pl. Wilson. iii. 457 (1917).

CENTRAL KANSU: en route to Lien hoa shan, alt. 2750 m., no. 12757, July 14–20, 1925 (woody climber; flowers cream-colored).

This species had not been collected in Kansu before. It was first collected in 1899 by the French missionary Georges Aubert near Tachien lu and introduced by him into cultivation and was collected again at the same locality by E. H. Wilson in 1908.

CHENOPODIACEAE

Determined by A. REHDER

Eurotia ceratoides C. A. Meyer apud Ledebour, Fl. Alt. iv. 239 (1833).—Moquin-Tandon in De Candolle, Prodr. xiii. pt. ii. 120 (1849).—Beck in Reichenbach, Icon. Fl. Germ. xxiv. 148, t. 273 (1900–1909).

EASTERN TIBET. Grasslands between Labrang and Yellow River: on loess banks between Kongwar and Kachiassu, alt. 2750 m., no. 14545, August 5, 1926 (flowers greyish pink). Kokonor Region: rocky dry slopes between Bamba and Tankar, alt. 3050 m., no. 13389, Sept. 1925 (shrub 60–90 cm.); dry gulch in Peitattung valley, below Peitattung, alt. 2900 m., no. 13703, Oct. 1925 (shrub).

RANUNCULACEAE

Determined by A. REHDER

Clematis lasiandra Maximowicz in Bull. Acad. Sci. St. Pétersb. xxii. 213 (1876); in Mém. Biol. ix. 586 (1876).—Rehder & Wilson in Sargent, Pl. Wilson. i. 323 (1913).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang, alt. 2300 m., nos. 14683 and 14707, Sept. 1 and 3, 1926 (climber over shrubs and trees; flowers purple).

Clematis aethusifolia Turczaninow in Bull. Soc. Nat. Moscou, v. 181 (1832).—Rehder in Jour. Arnold Arb. iv. 190 (1923).

SOUTHWESTERN KANSU. Tao River basin: among limestone rocks back of Choni, alt. 2600 m., no. 12867, July 1925 (flowers whitish); Kadjaku valley, among scrub along road, no. 13141, July 1925 (climber woody at base; flowers yellowish). Lower Tebbu country: gravelly rocky banks of Peshwekiang, alt. 2050 m., no. 14557, Aug. 30, 1926 (climber; flowers greenish yellow;) loess slopes, Wantsang ku, alt. 2150 m., no. 15008, Sept.–Oct. 1926 (climber; fruits white).

Clematis macropetala Ledebour, Icon. Pl. Fl. Ross. 5, t. 11 (1829).—Rehder in Jour. Arnold Arb. iv. 192 (1923).

SOUTHWESTERN KANSU. Tao River basin: Maerhku valley, south of Choni, in forests, alt. 2750 m., no. 12560, June 1925 (flowers rich lavender purple); in crevices of limestone walls along Tao river between Tatsuto and Lupassu, west of Choni, alt. 2550 m., no. 12524 June 1925 (flowers bluish purple).

Clematis gracilifolia Rehder & Wilson in Sargent, Pl. Wilson. i. 331 (1913).

SOUTHWESTERN KANSU. Tao River basin: Choni, alt. 2600 m., no. 12164, June 1925 (climbing over shrubs; flowers white with pinkish tinge); Taoho watershed, Choni, alt. 2750 m., no. 12294, June 1925 (climber of bushes in scrub forest, usually associated with Berberis); Minshan range, valley of Kadjaku beyond Tatsuto, alt. 3000 m., no. 12428, June 1925 (woody climber; flowers purplish white); Tatsuto, Kadjaku, alt. 2600 m., no. 12469, June 1925 (festooning shrubs; flowers white, purplish beneath).

The specimen under no. 12164 has much larger leaves than the typical form, the lateral leaflets being up to 2, the terminal up to 3 cm. long, and the flowers are up to 4 cm. in diameter, also no. 12428 has flowers of the same size but small leaflets like those of the typical form.

Clematis brevipes Rehder, sp. nov.

Frutex scandens ramis subteretibus sulcatis glabris, junioribus initio satis dense adpresse albido-villosis; gemmae perulis exterioribus adpresse pubescentibus costa carinata glabrescente excepta, interioribus villosis. Folia pinnata, plus minusve cirrhosa, pedunculo 4–5 cm. longo incluso

circiter 10 cm. vel ultra longa, bijuga, initio praesertim ad petiolum et rachin laxe villosa, mox glabrescentia; foliola triangulari-ovata, circiter 3-4.5 cm. longa, petiolulo 5-10 mm. longo, trilobata lobis abrupte acutis, terminali acuminato, integris vel lateralibus extus dente uno instructis et medio saepissime dentibus duobus praedito, maturitate glabra. Flores in axillis foliorum inferiorum ramulorum lateralium solitarii, par infimum in axillis bractearum basalium, 3.5-4 lati, flavido-albi, simul cum foliis; pedunculi erecti, 1.5-2.5 cm. longi, uniflori, laxe villosi, infra medium vel ad basin bracteis duobus lanceolatis 3-4 mm. longis praediti; sepala 4, patentia, ovalia, 1.5-2 cm. longa et 12-15 mm. lata, apice rotundata, tenuia, extus parce villosula, non marginata; stamina subaequalia, dimidium partem sepalorum circiter aequantia, filamentis linearibus apicem versus attenuatis medio ad 1 mm. latis glabris quam antherae lineari-oblongae 2 mm. longae circiter quater longioribus; carpella staminibus paullo longiora, stylo plumoso, ovariis dense sericeo-villosis. Fructus maturi desiderantur.

SOUTHERN KANSU: between Kaichow and Minchow, no. 12075, April 1925 (climber; flowers cream-colored).

This new species is similar to *C. Fargesii* Franch. which differs, however, in its glabrous achenes, in the bipinnate leaves and in the usually 3-flowered long-stalked cymes borne in the axils of the middle or upper leaves. The presence of flowers in the axils of the basal bracts indicate some affinity to the group *Montanae*, which has the flowers in axillary clusters on branches of the previous season; in its leaves the new species resembles closely *C. gracilifolia* Rehd. & Wils., a member of this group, except that the leaves of the latter are much smaller.

Clematis Fargesii Franchet in Jour. de Bot. VIII. 273 (1894).—Finet & Gagnepain in Bull. Soc. Bot. France, L. 523 (1903); Contrib. Fl. As. Or. I. 8 (1905).

SOUTHWESTERN KANSU. Tao River basin: in forest of Spruce hills, west of Choni, alt. 3000 m., no. 12886 July 1925 (flowers white); grassy slopes of Maerhku valley and in Spruce forests, alt. 3000 m., no. 12948, July 1925 (woody climber covering Willow bushes; flowers large, white); Maerhku, east Minshan, among shrubs in Picea forest, alt. 2900 m., no. 13624, Sept.-Oct. 1925 (woody climber.)

Clematis hastata Finet & Gagnepain in Bull. Soc. Bot. France, L. 52 t. 16 (1903); Contrib. Fl. As. Or. I. 12, t. 16 (1905).

WESTERN SZECHUAN: near Ching chuan, along Fu kiang River, no. 12037, April 1925 (woody climber; flowers white).

This species was first collected by Farges in eastern Szechuan near "Tchen-kéou" and is known to me only from the original description and figure. Rock's specimen which was collected in southern central Szechuan agrees well with the description and the figure except that the sepals are oblong rather than lanceolate and rounded at apex and the filaments about twice as long as the anthers, but this difference may be due to the fact that in Farges' specimen the flowers were just opening, while Rock's specimen is almost out of bloom with only a few sepals and a few stamens still clinging to the heads of the young fruits.

Clematis Armandi Franchet in Nouv. Arch. Mus. Paris, sér. 2, VIII. 184, t. 2 (Pl. David. II. 2) (1885).—Sprague in Bot. Mag. CXL. t. 8587 (1914).

WESTERN SZECHUAN: beyond Kiang yu, north Szechuan no. 12009, March 1925 (woody climber over shrubs on rocky slopes).

Clematis fruticosa Turczaninow in Bull. Soc. Nat. Moscou, v. 180 (1832).—Finet & Gagnepain in Bull. Soc. Bot. France, L. 537 (1903); Contrib. Fl. As. Or. I. 22 (1905).

Clematis fruticosa α . *viridis* Turczaninow in Bull. Soc. Nat. Moscou, v. 180 (1832).

Clematis fruticosa β . *lobata* Maximowicz, Enum. Pl. Mongol. 3 (1889).

SOUTHWESTERN KANSU. Lower Tebbu country: gravelly banks and slopes of Peshwekiang, alt. 2300 m., no. 14566, August 29, 1926 (erect shrub 60–90 cm.; flowers dark yellow, grayish outside, drooping); loess slopes in valley of Chulungapu, alt. 2450 m., no. 15007, Sept.–Oct. 1926 (shrub about 1 m.; fruit golden yellow).

Clematis fruticosa var. β . *canescens* Turczaninow in Bull. Soc. Nat. Moscou, v. 180 (1832).

Clematis fruticosa Maximowicz, Enum. Pl. Mongol. 2 (1889), sensu str.

NORTHWESTERN KANSU: northern slopes of Richthofen range in dry rocky gorge, near entrance and in Liyüanku, en route to Kanlungssu, no. 13322, Nov. 1925 (erect shrub 60–90 cm.).

Rock's specimens of no. 13322 are leafless or nearly so, but a few partly broken leaves show that it belongs to the form with entire leaves which Maximowicz considered the type of the species. Turczaninow, however, when distinguishing two forms of his new species places the form with dentate leaves under α and that with entire leaves under β , thus making the former the type of the species.

Clematis nannophylla Maximowicz in Bull. Acad. Sci. St. Pétersb. XXII. 305 (1877); in Mém. Biol. IX. 707 (1887); Fl. Tangut. 2, t. 1, figs. 1–9 (1889).

CENTRAL KANSU. Yellow River basin: sandstone cliffs and loess banks, barren ravines, between Tao shan and Lanchow, alt. 1830 m., no. 13231, Aug. 1925 (small shrub 30–50 cm.; flowers yellow); loess ravines near Lanchow, alt. 1525 m., no. 13242, August 1925 (shrub 60–90 cm.; flowers yellow).

In the specimens under no. 13242 the branchlets are 3–5-flowered, not 1-flowered as originally described by Maximowicz and the leaves partly resemble those of *C. fruticosa* Turcz. except that they are very much smaller, while in no. 13231 the branchlets are 1–3-flowered and the leaves partly approach those of var. *foliolosa* Maxim.

Clematis brevicaudata De Candolle, Syst. I. 138 (1818).—Finet & Gagnepain in Bull. Soc. Bot. France, L. 533 (1903); Contrib. Fl. As. Or. I. 18 (1905).

SOUTHWESTERN KANSU. Tao River basin: in forests of Kad-jaku and Tao valley, alt. 2750 m., no. 13137, July 1925 (woody climber;

flowers dark cream-colored to yellow). Lower Tebbu country: Peshwekiang valley, alt. 2300 m., no. 14569, Aug. 29, 1926 (climber over shrubs; flowers cream-colored). Upper Tebbu country; Yiwaku, along stream, Drakana, alt. 2750 m., 14632, August 22, 1926 (flowers yellowish).

CENTRAL KANSU. Lien hoa shan: lower slopes, alt. 2750 m., no. 13614, Sept.-Oct. 1925 (woody climber; flowers white).

NORTHWESTERN KANSU. Richthofen range and adjacent region: at foot of Loyui shan, near Sincheng, alt. 2750 m., no. 13308, Oct. 1925 (woody climber over *Berberis* bushes).

Clematis Gouriana Roxb. var. *Finetii* Rehder & Wilson in Sargent, Pl. Wilson. 1. 339 (1913).

SOUTHWESTERN KANSU. Lower Tebbu country: dry valley slopes of Peshwekiang near Wantsang monastery, alt. 2000 m., no. 14733 Sept. 2, 1926 (climber over *Berberis*).

Neither the species nor its var. *Finetii* had been recorded from Kansu before.

Clematis glauca Willd. var. *akebioides* Rehd. & Wils. f. *phaeantha* Rehder in Jour. Arnold Arb. 1. 195 (1920).

SOUTHWESTERN KANSU. Tao River basin: Maerhku valley, in Willow bushes, alt. 2750 m., no. 12964, July 25, 1925 (climber; flowers purplish brown).

CENTRAL KANSU: en route to Lien hoa shan, along stream banks, alt. 2750 m., no. 12756, July 14-20, 1925 (flowers purple and yellow).

Clematis tangutica Korsh. var. *obtusiuscula* Rehder & Wilson in Sargent, Pl. Wilson. 1. 343 (1913).—Chittenden in Jour. Roy. Hort. Soc. XLVII. 193, fig. 49 (1922).

CENTRAL KANSU. Lien hoa shan: lower slopes, alt. 2750 m., no. 13615, Sept.-Oct. 1925 (woody climber; fruiting heads 7.5 cm. in diameter).

EASTERN TIBET. Radja and Yellow River gorges: climbing over rocks on banks of Yellow River near Radja, alt. 3050 m., no. 14037, May 28, 1926 (flowers yellow); back of Radja, alt. 3050 m., no. 14124, June 1926 (climber over *Lonicera* bushes and rocks). Kokonor Lake: alt. 3350-3650 m., no. 13277, Sept. 1925 (erect shrub 60-90 cm., not prostrate; fruiting heads pinkish purple).

The erect shrubby habit of Rock's no. 13277 from Kokonor Lake is apparently caused by the fact that the stems are dying partly back during the severe winter at that high altitude but the leaves still retain their cirrhose habit.

LARDIZABALACEAE

Determined by A. REHDER

Akebia quinata Decaisne in Arch. Mus. Paris, 1. 195, t. 13a (1839).—Siebold & Zuccarini, Fl. Jap. 1. 145, t. 77 (1841).—Rehder & Wilson in Sargent, Pl. Wilson. 1. 347 (1913), with full citation of literature and synonyms.

WESTERN SZECHUAN: gorge of Fukiang River, in company with no. 12021, no. 12024, March 1925 (woody climber forming dense masses over rocks and shrubs; flowers dark red).

The species does not seem to have been recorded from Szechuan before. The leaves of Rock's Szechuan plant are persistent and bear occasionally 6-8 leaflets instead of the normal 5; usually they are deciduous or half-evergreen with only a few persisting occasionally until the following spring.

Akebia trifoliata Koidzumi in Tokyo Bot. Mag. xxxix. 310 (1925).

Clematis trifoliata Thunberg in Trans. Linn. Soc. II. 337 (1794).

Akebia lobata Decaisne in Arch. Mus. Paris, I. 196, t. 13b (1839).—Hooker f. in Bot. Mag. cxxii. t. 7485 (1896).

WESTERN SZECHUAN: mountains south of Ching chuan, alt. 1500 m., no. 12028, March 1925 (woody climber, flowers dark red).

BERBERIDACEAE

Determined by J. T. P. BYHOUWER

Berberis Soulieana Schneider in Bull. Herb. Boiss, sér. 2, v. 449 (1905); in Sargent, Pl. Wilson. I. 361 (1913); III. 437 (1917); in Oesterr. Bot. Zeitschr. LXVII. 137 (1918).—Rehder in Jour. Arnold Arb. v. 138 (1924).

Berberis stenophylla Hance in Jour. Bot. xx. 257 (1882).—Fedde in Bot. Jahrb. xxxvi. beibl. LXXXII. 44 (1905).—Non Lindley.

Berberis Wallichiana Hemsley in Jour. Linn. Soc. XXIII. 32 (1886).—Maximowicz in Act. Hort. Petrop. XI. 42 (1890).—Diels in Bot. Jahrb. XXIX. 341 (1900), quoad specimen coll. a Piasezki.—Non De Candolle.

Berberis levis Schneider in Bull. Herb. Boissier, sér. 2, VIII. 198 (1908), quoad specimina e Shensi et synonyma citata.—Non Franchet.

WESTERN SZECHUAN: north of Kiang-yu on banks of Fu Kiang, alt. 800 m., no. 12010, March 1925 (shrub 1.5-1.8 m.).

Berberis diaphana Maximowicz in Bull. Acad. Sci. St. Pétersb. XXIII. 309 (1876); in Mém. Biol. IX. 712 (1877); Fl. Tangut. 32, t. 8, fig. 1-7 (1889); in Act. Hort. Petrop. XI. 42 (1890).—Hemsley in Jour. Linn. Soc. XXIII. 31 (1886).—Kantz in Szechenyi, Wiss. Ergeb. Reise Ostas. II. 681 (1898).—Schneider in Bull. Herb. Boissier, sér. 2, v. 398 (1905); VIII. 195 (1908).—Fedde in Bot. Jahrb. XXXVI. beibl. LXXXII. 44 (1905).—Rehder in Sargent, Trees & Shrubs, II. 19, t. 109 (1907); in Jour. Arnold Arb. v. 139 (1924).

SOUTHWESTERN KANSU. Tao River basin: Tayüku, east Tebbu land, alt. 3000 m., no. 13525, Oct. 1925 (shrub 1.2-1.8 m.; fruit pale yellow to red); mountains near Adjüan, east Tebbu land, alt. 3200 m., no. 13529, Oct. 1925; Kadjaku, west Tebbu land, in Picea forest, alt. 2900 m., no. 13574, Oct. 1925 (shrub 1.2-1.5 m.); fruit red, single, turbinate; ridges west of Adjüan, alt. 3000 m., no. 12634, July 6-10, 1925 (shrub 1.2-1.5 m.; flowers yellow).

CENTRAL KANSU: Lien ho a shan: alt. 2900 m., no. 13474, Oct. 1925 (shrub 1.5-1.8 m., globose in appearance).

EASTERN TIBET. Radja and Yellow River gorges: outskirts of Spruce forest on slopes of mountain south of Yellow River, facing northward towards Radja, alt. 3200 m., no. 14108, June 10, 1926 (shrub 1.2-1.5 m., spines straw color, long; flowers yellow, single); conglomerate gorges back of Radja, alt. 3200 m., no. 14115, June 10, 1926 (shrub 1.8-2.4 m.). Alpine region between Radja & Jupar range: near Radja among conglomerates, alt. 3200 m.,

no. 14100, June 6, 1926 (shrub 1.2 m.; flowers single yellow). K o n o r R e g i o n: Koko gorge, no. 13263, Sept. 1925 (shrub 1.5–2.4 m., spines large; fruit yellow and red and asymmetrical at apex & base); Koko gorge, no. 13272, Sept. 1925 (shrub 1.5–2.4 m., spines thick; fruits oval, single); Lalaku gorge, alt. 3400 m., no. 13273, Sept. 1925 (shrub 1.2–1.8 m.; fruits single, on long pedicels).

Of this species good material had been collected in Kansu by R. C. Ching, collector of the Wulsin expedition (nos. 432, 556 and 961).

Berberis parvifolia Sprague in Kew Bull. Misc. Inform. 1908, p. 445.—Schneider in Sargent, Pl. Wilson. III. 436 (1917); in Oesterr. Bot. Zeitschr. LXVII. 296 (1918).—Rehder in Jour. Arnold Arb. v. 139 (1924).

SOUTHWESTERN KANSU: Tao River basin: Poyüku, alt. 2900 m., no. 13530, Oct. 1925 (shrub 0.9–1.2 m.); embankments of Tao between Choni and Poyüku, no. 13744, Dec. 1925 (shrub 0.3 m.; fruits red); Maerhku valley, Choni district, alt. 2800 m., no. 13564, Sept.–Oct. 1925 (shrub 0.9–1.2 m.; fruit red, in axillary, short racemes); on rocky slopes of Maerhku valley, alt. 2700 m., no. 12956, July 25, 1925 (shrub 0.6 m.; flowers yellow); along river, near Choni, alt. 2600 m., no. 12797, June–July 1925 (shrub 0.6 m.; flowers yellow); valley back of Choni, en route to new city, no. 13745, Dec. 1925 (shrub 0.3–0.6 m.); in dry scrub, arid valley north of Choni, no. 14911, Oct. 13, 1926 (fruit single or in short cymes of eight, brilliant red and semi-transparent when ripe).

This species had been collected in Kansu by Purdom (see Rehder l.c.) and R. C. Ching (Wulsin expedition, no. 845).

Berberis Caroli Schneider in Bull. Herb. Boissier sér. 2, v. 459 (1905).

Berberis integerrima var. *stenophylla* Maximowicz, Fl. Tangut. 29 (1889); in Act. Hort. Petrop. XI. 41 (1890).

EASTERN TIBET. Ba valley: in dry arid loess ravines of lower valley, alt. 2850 m., no. 14362, July 1926 (shrub 2.4 m.; flowers yellow).

NORTHWESTERN KANSU. Richthofen range and adjacent region: Liyüanku, no. 13314, Nov. 1925 (shrub 1.2–1.5 m., with rambling drooping branches; fruits pale whitish pink).

These two specimens are intermediate between *Berberis Caroli* Schneid. and *Berberis Vernae* Schneid., but in the characters are nearer to *Berberis Caroli* Schneid.: inflorescence 15–20-flowered, pedicels 3–5 mm., fruiting pedicels 5–7 mm., fruits oblong, to 7 mm. long.

Berberis Vernae Schneider in Sargent Pl. Wilson. I. 372 (1913); in Möller's Deutsch. Gärtn.-Zeit. XXXV. 82, fig. (1917); in Oesterr. Bot. Zeitschr. LXVII. 218 (1918).

Berberis integerrima var. *stenophylla* Maximowicz, Fl. Tangut. 29 (1889), ex parte.

Berberis Caroli var. *hoanghensis* Schneider in Bull. Herb. Boissier, sér. 2, v. 459 (1905).

SOUTHWESTERN KANSU. Tao River basin: valley, Choni, in scrub forest, alt. 2600 m., no. 12271, June 1925 (shrub 1.2–1.5 m. tall; flowers small, in drooping racemes); Choni, alt. 2600 m., no. 14888,

Aug.-Sept. 1926 (shrub 3 m., forming large round clumps; fruit red, in short racemes); on loess bluffs at Laliku, alt. 2700 m., no. 14915, Oct. 20, 1926 (shrub 3 m., forming dense thickets; fruit globose, scarlet, in drooping racemes); Tatsuto, Kadjaku, alt. 2700 m., no. 13557, Oct. 1925 (shrub 1.5-1.8 m.; fruits ovoid, in short racemes, brilliantly red). Lower Tebbu country: Pezhu, banks of Peshwekiang, no. 14943, Oct. 1926 (shrub 1.2-1.8 m., forming clumps, branches slender, drooping; fruit red, in drooping racemes); undergrowth in groves of Juniperus, Populus, at Pezhu, Peshwekiang, alt. 2150 m., no. 14563, Aug. 1926 (shrub 1.8-2.4 m., long drooping branches; fruit brick red).

WESTERN KANSU: between Hsining and Tankar, alt. 2700 m., no. 13256, Sept. 10, 1925 (shrub 0.9-1.2 m.; fruit tomato-red); foot of Loyni shan, near Sin cheng, north-east of Tankar, no. 13289, Oct. 1925 (shrub 1.5-1.8 m.; fruit in drooping racemes, red, transparent, juicy).

NORTHWESTERN KANSU. Richthofen range and adjacent region: Liyüanku, no. 13315, Nov. 1925 (shrub 1.5 m.; fruit red, in drooping racemes).

Berberis Silva-Taroucana Schneider in Sargent, Pl. Wilson. I. 370 (1913).—Hesse in Mitt. Deutsch. Dendr. Ges. xxii. 266 (1914).

SOUTHWESTERN KANSU. Tao River basin: slopes of Laliku, on loess bluff overlooking river, alt. 2700 m., no. 14913, Oct. 19, 1926 (shrub 1.2 m.; fruit scarlet, in short sessile racemes); Adjüan, Taku, east Tebbu country, alt. 3000 m., no. 13522, Oct. 1925 (shrub 1.2-1.5 m.; fruits red); Tebbu country south of Minshan range, alt. 2950 m., no. 12473, June 1925 (shrub 1.5-1.8 m.; young leaves purple; flowers yellowish-red).

Berberis Silva-Taroucana was until now only known from western Szechuan; the material from Kansu differs from the type specimen only in the somewhat lighter branches.

Berberis Mouillacana Schneider in Sargent Pl. Wilson. I. 371 (1913).

Descriptioni adde: Inflorescentiae laxae racemosae, 1.5-2.5 cm. longae pedunculo nudo 4-10 mm. incluso, 2-9-florae, glabrae; flores flavi vel extus rubescentes, satis parvi (circiter 5-9 mm. diam.); pedicelli 3-6 mm. longi, basi bracteis acuminatis 1 mm. longis instructi; sepala interiora late ovata; petala sepalis interioribus aequilonga, obovata, glandulis oblongis instructa; stamina normalia; ovaria ovulis 2 sessilibus instructa.

SOUTHWESTERN KANSU. Tao River basin: Maerhku, Minshan, alt. 2700 m., no. 14898, Aug.-Sept. 1926 (shrub 1.2-1.8 m.; fruit in small raceme, pedicels several times as long as peduncle); beyond Tatsuto in Spruce forest, alt. 2600 m., no. 12443, June 1925 (shrub 1.5-1.8 m. spines red, long; flowers yellow, tinged red); on loess hills, back of Choni, en route to Taochow, alt. 2500 m., no. 13202, Aug. 1925 (shrub 1.2 m.; fruit reddish, glaucous); river valley, among shrub of *Berberis*, *Lonicera* etc., on grassy slopes, alt. 2650 m., no. 12303, June 1925 (shrub 1.2 m.; leaves bright green; flowers yellow).

Probably the two following specimens also belong to *Berberis Mouil-lacana*; they differ, however, from the other material in having mostly narrower, oblong to oblanceolate leaves, shorter-peduncled, often nearly sessile umbel-like racemes and slightly longer pedicels (6-8 mm.).

SOUTHWESTERN KANSU. Tao River basin: northern bank between Choni and Kadjaku, alt. 2600 m., no. 12458, June 1925 (shrub 1.2-1.5 m.; flowers yellow, on slender red pedicels); Minshan range, valley of Kadjaku beyond Tatsuto, alt. 3000 m., no. 12429, June 1925 (shrub 1.2-1.8 m.; flowers pale yellow).

This species was only known from western Szechuan; the material from Kansu has leaves with grayish-pruinose under surface, like part of the original material.

Berberis Boschanii Schneider in Sargent, Pl. Wilson. i. 369 (1913). Descriptioni adde: Folia margine integra vel supra medium dentibus brevibus 1-6 instructa. Inflorescentiae racemosae, pedunculatae pedunculis 7-10 mm. longis, 5-15-florae, glabrae, 1.5-2.5 cm. longae; flores flavae, parvae (circiter 4-7 mm. diam.); pedicelli 5-7 mm. longi, basi bracteis minutis 0.5-1 mm. longis instructi; sepala interiora late ovata, petala obovata, sepalis aequilongis, glandulis 2 normaliter instructa; stamina apice paullo apiculata, petalis breviora; ovaria ovulis 2 subsessilibus instructa.

SOUTHWESTERN KANSU. Upper Tebbu country: southern slopes of Minshan, alt. 2900-3200 m., no. 12513, June 1925 (shrub 1.2-1.5 m.).

NORTHWESTERN KANSU. Richthofen range and adjacent region: in Hung shui kou, on rocky slopes, north slopes of Richthofen range, east end, alt. 2850-2950 m., no. 13300, Oct. 1925 (shrub 0.9-1.2 m.; fruit dull waxy red); Liyüanku, no. 13316, Nov. 1925 (fruit red).

EASTERN TIBET. Radja and Yellow River gorges: alt. 3000 m., no. 13948, May 26, 1926 (shrub 1.2-1.5 m.); rocky slopes back of Radja, alt. 3300 m., no. 13920, May 20, 1926 (shrub 1.2 m.); along streambed and outskirts of Spruce forests in Dachso canyon, north of Radja, alt. 3200 m., nos. 14073 and 14079, June 2, 1926 (shrub 1.2-1.5 m.; flowers yellow). Kokonor Region: mt. of Hankar, Kokonor border, alt. 2850 m., no. 13274, Sept. 1925 (shrub 0.9-1.2 m.; fruit red, transparent); among limestone rocks, below Kettenika, east Kokonor, alt. 3000 m., no. 13366, Sept. 1925 (shrub 0.9 m.; fruit red); Koko gorge, no. 13261, Sept. 1925 (shrub 1.2-2.4 m.).

This species had been collected in Kansu by R. C. Ching, who accompanied the Wulsin Expedition (nos. 86 and 773).

Berberis dasystachya Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiii. 308 (1877); in Mém. Biol. ix. 711 (1877); Fl. Tangut. 30, t. 5, fig. 1-7 (1889); in Act. Hort. Petrop. xi. 41 (1890).—Hemsley in Jour. Linn. Soc. xxiii. 3 (1886).—Kanitz in Szechenyi, Wiss. Ergeb. Reise

Ostas. II. 681 (1898).—Bretschneider, Hist. Eur. Bot. Discov. China, 971 (1898).—Fedde in Bot. Jahrb. xxxvi. beibl. LXXXII. 43 (1905).—Schneider in Sargent Pl. Wilson. III. 442 (1917); in Oesterr. Bot. Zeitschr. LXVII. 287 (1918).

Berberis heteropoda var. *oblonga* Maximowicz in Act. Hort. Petrop. XI. 41 (1890).—Non Regel.

? *Berberis dolichobotrys* Fedde in Bot. Jahrb. xxxvi. beibl. LXXXII. 41 (1905).

Berberis vulgaris var. *dasystachya* Voss in Putlitz & Meyer, Land-Lex. v. 709 (1913).

SOUTHWESTERN KANSU. **Tao River basin:** along streams of Tao river watershed, outskirts of Pine forest, no. 12207, June 1925 (shrub 1.2–1.5 m.; leaves pale green; flowers in racemes, yellow); alt. 2700 m., no. 13514, Oct. 1925 (shrub 2.1–2.4 m.; fruits crimson); river bank, Choni, alt. 2550 m., no. 12885, July 1925 (shrub 1.8–2.4 m.; flowers yellow); Tatsuto, Kadjaku valley in Pine and Picea forest, alt. 2750 m., no. 13561, Sept.–Oct. 1925 (shrub 1.8–3.0 m.; fruit red, in long drooping racemes); Kadjaku valley, outskirts of Pine forests, alt. 2600 m., no. 12465, June 1925 (shrub 3.0–3.6 m., very spiny; flowers in long drooping racemes, bright yellow); valley of Shiaoiku, en route to Tebbu land, Mt. Lissedzadza, alt. 3000 m., no. 12808, July 1925 (shrub 1.2–1.5 m.). **Lower Tebbu country:** forests of Wantsang valley, alt. 2550 m., no. 14680, Sept. 1, 1926 (shrub 1.8–2.4 m.; leaf thin, dark green; fruit oblong, truncate). **Upper Tebbu country:** near Tongwa, southern Minshan, no. 12504, June 1925 (shrub 1.4–1.8 m.; flowers in drooping racemes).

WESTERN KANSU: summit ridges of Komang ssu, northeast of Tankar, alt. 3200 m., no. 13291, Oct. 1925 (resembles 13290 which see under *B. kansuensis*).

EASTERN TIBET. **Kokonor Region:** Koko gorge, no. 13262, Sept. 1925 (shrub 1.5–1.8 m.; leaf pale yellow; fruit elliptic, in erect racemes).

Berberis dasystachya Maxim. had not been found previously in Eastern Tibet.

Berberis brachypoda Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiii. 308 (1877); in Mém. Biol. ix. 711 (1877); Fl. Tangut. 30, t. 7, fig. 8–13 (1889).—Hemsley in Jour. Linn. Soc. xxiii. 31 (1886).—Bretschneider, Hist. Eur. Bot. Disc. China, 995 (1898).—Schneider in Bull. Herb. Boissier, sér. 2, VIII. 262 (1908); in Oesterr. Bot. Zeitschr. LVII. 285 (1918).—Rehder in Jour. Arnold Arb. v. 142 (1924).

SOUTHWESTERN KANSU. **Tao River basin:** along river, east of Choni, alt. 2400 m., no. 12796, June–July 1925 (shrub 1.2–1.5 m., flowers in drooping spikes; leaves dull green); loess hills, alt. 2700 m., no. 14936, Oct. 20, 1926 (shrub 3.0–4.5 m., branches straight erect; fruit red, in hairy drooping racemes); west of Choni, in open outskirts of forests, alt. 2550–2700 m., no. 12181, June 1925 (shrub 1.2–1.5 m. with long stiff branches; drooping inflorescences); Poyuku, alt. 2700 m., no. 13545,

Sept.-Oct. 1925 (shrub 1.5-1.8 m.; leaves coriaceous; fruits small, globose, in short racemes). Lower Tebbu country: Wantsang ku forests, alt. 2550 m., no. 15029, Sept.-Oct. 1926 (shrub 1.2 m.; fruit red, in drooping racemes).

Berberis kansuensis Schneider in Oesterr. Bot. Zeitschr. LXVII. 288 (1918).

Berberis dasystachya Rehder in Jour. Arnold Arb. v. 142 (1924) pro parte, quoad W. Purdom no. 1014, 1910.—Non Maximowicz.

Descriptioni adde: Inflorescentiae fructiferae 4-7 cm. longae. Fructus rubri ("crimson" fide Rock), leviter pruinosi, ovato-elliptici, circiter 6-8: 3-5 mm. magni, stigmatibus sessilibus; semina 1-2.

SOUTHWESTERN KANSU. Tao River basin: Tatsuto to Kadjaku, alt. 2800 m., in forests, no. 13528, Oct. 1925 (shrub 2.1-2.4 m.; fruit crimson); Maerhku, Minshan, alt. 2700 m., no. 14899, Aug.-Sept. 1926 (shrub 3.0 m.; fruit in long racemes, brilliant red with pruinose hue; Tayüka, east Tebbu country, alt. 3000 m., no. 13526, Oct. 1925 (shrub 1.8-3.0 m.); south of Minshan range in Tebbu country, alt. 2900 m., no. 12482, June 1925 (shrub 1.2-1.8 m.; flowers yellow, in drooping racemes). Lower Tebbu country: forests of Wantsang valley, alt. 2400 m., no. 14723, Sept. 3, 1926 (shrub 3.6-4.5 m., with long drooping branches; fruit in racemes, dull red); mountains back of Wantsang ssu, alt. 2850 m., no. 14804, Sept. 9, 1926 (shrub 1.5-1.8 m.; fruit red, in drooping racemes); Mayaku near Nyipa, alt. 2100 m., no. 14786, Sept. 9, 1926 (shrub 1.5-1.8 m.; leaf glaucous; fruit reddish yellow, in drooping racemes). Upper Tebbu country: southern slopes of Minshan, alt. 2900-3150 m., no. 12511, June 1925 (shrub 1.2-1.8 m., young stem red; flowers yellow).

WESTERN KANSU: Komang ssu: alt. 2950 m., no. 13290, Oct. 1925 (shrub 4.5 m., with long whip-like branches; fruit red, in drooping racemes); alt. 2950 m., no. 13292, Oct. 1925 (resembles 13290, but leaves oblong instead of orbicular; fruit pale red).

LAURACEAE

Determined by A. REHDER

Benzoin umbellatum Rehder in Jour. Arnold Arb. I. 146 (1919).

Lindera umbellata Thunberg, Fl. Jap., 145, t. 21 (1784).—Shirasawa, Icon. Ess. For. Jap. II. t. 18, fig. 16-33 (1908).

SOUTHWESTERN KANSU. Lower Tebbu country: forests in lower Wantsang valley, alt. 2125 m., no. 14729, Sept. 3, 1926 (tree 6 m.; bark, leaves etc. fragrant).

Benzoin strychnifolium var. *Hemsleyanum* (Diels) Rehder in Jour. Arnold Arb. I. 145 (1919).

WESTERN SZECHUAN: on mountains of Ching chuan, alt. 1825 m., no. 12039, April 1925 (tree 4.5 m., bushy crown; flowers yellow).

Litsea cubeba Persoon, Syn. II. 4 (1807).

Litsea citrata Blume, Bijdr. 565 (1825).

WESTERN SZECHUAN: mountains of Ching chuan, no. 12038, April 1925 (tree 4.5 m.; flowers yellow).

Litsea sericea Hooker f., Fl. Brit. Ind. v. 156 (1886).—Rehder in Jour. Arnold Arb. i. 143 (1919).

WESTERN SZECHUAN: north of Kiang yu; gorge along the Fu kiang, alt. 1200 m., no. 12021, March 1925 (tree 3–4 m.; flowers yellow).

SAXIFRAGACEAE

Determined by A. REHDER

Philadelphus pekinensis var. *kansuensis* Rehder, var. nov.

Philadelphus sericanthus Rehder in Jour. Arnold Arb. v. 153 (1924), quoad specimen e Kansu.—Non Koehne.

A typo recedit praecipue calycibus extus et pedicellis strigoso-villosis et a var. *dasycalyx* foliis supra adpresse scabrido-pilosis subtus ad costam nervosque, sparsius in facie strigoso-pilosis et petiolis strigoso-villosis.—Frutex 1.5–3-metralis; ramuli annotini cortice cinereo-fusco vel rubro-fusco horizontaliter fisso et mox solubili. Folia oblongo-ovata vel elliptico-ovata ad ovato-lanceolata, 3–5 cm. vel interdum ad 7 cm. longa, acuminata, supra laete viridia, sparse scabrido-pilosa, interdum glabrescentia, subtus pallida, ad costam et nervos densius in facie sparsius vel interdum tantum ad costam et nervos sparse strigoso-pilosa; petioli strigoso-villosi. Racemi 5–7-flori, rhachi initio sparse villosa; flores 2–2.5 diam.; pedicelli 3–6 mm. longi, villosio-strigosi ut calycis tubus et sepala ovata acuminulata extus; petala ovalia; stylus staminibus paullo brevior apice quarta vel tertia parte divisus, stigmatibus angustis brevibus.

SOUTHWESTERN KANSU. Tao River basin; forests of Choni, along banks of streams, alt. 2900 m., no. 12587, July 1925 (shrub 1.5–3 m. tall; flowers white, leaves pale beneath; type); valley of Toyuku, alt. 2600 m., no. 12821, July 1925 (shrub 2–2.5 m.; flowers white, fragrant); banks of Tao, alt. 2600 m., no. 12870, July 1925 (shrub 1.5–2.5 m.; leaves greyish beneath; flowers white fragrant); outskirts of forests, Tao valley, alt. 2600 m., no. 12873, July 1925 (shrub 1.75–2 m.; leaves small; flowers numerous); in Spruce forest, west bank of Tao valley, alt. 3000 m., no. 12883, July 1925 (shrub 3 m.; flowers white, fragrant); Tatsuto, Kadjaku valley, Tebbu land, alt. 2800 m., no. 13603, Sept.–Oct. 1925 (shrub 2–3 m.); outskirts of Picea forest, Poyuku, alt. 2750 m., no. 13659, Oct. 1925 (shrub 2–2.5 m.); Poyuku, valley, outskirts of Picea forest, north Minshan, alt. 2850 m., no. 13687, Sept.–Oct. 1925 (shrub 2–3 m.); outskirts of forest, with Junipers in Choni ku, alt. 2700 m., no. 14926, Oct. 20, 1926 (shrub 3–4.5 m., branches erect). Lower Tebbu country: forests of Wantsang valley, alt. 2450 m., no. 14684, Sept. 1, 1926 (shrub 2–3 m.; leaf small, pale); outskirts of Abies forests, back of Wantsang ssu, alt. 2850 m., no. 14813, Sept. (?) 1926 (flowers white, fragrant); on dry arid slopes with Oaks in Mayaku near Nyipa village, alt. 2250 m., no. 14791, Sept. 8, 1926 (shrub 3–5 m.); dense forest of Wantsang, alt. 2750 m., no. 14852, Sept.

12, 1926 (tree 5-6 m., leaf pale green above, greyish green beneath); Pezhu valley, alt. 2850 m., no. 14948, Oct. 1926 (shrub 4.5 m.; leaf whitish blue beneath); mountains of Wantsang, valley of Chulungapu, alt. 2450 m., no. 15046, Sept.-Oct. 1926 (shrub 4.5; leaf glaucous beneath); Mayaku near Nyiba, alt. 2250 m., no. 15076, Sept.-Oct. 1926 (shrub 1.5-2 m.; leaf pubescent). Upper Tebbu country: in Spruce forests of Drakana, alt. 3050 m., no. 13102, July-Aug. 1925 (shrub 2-2.5 m.).

CENTRAL KANSU. Lien hoa shan: forests of Spruces and Birches, alt. 3050 m., no. 12749, July 14-20, 1925 (shrub 1.5-2 m.; leaves glaucous beneath; flowers white fragrant).

Here belong also the following specimens from KANSU: Hsia Mo K'ou, near Lichen, alt. 2000-2300 m., *R. C. Ching*, Wulsin Exped. no. 325, July 7-8, 1923; Toul Ping, near Lichen, alt. 2150-2950 m., *R. C. Ching*, Wulsin Exped. no. 393, July 7-9, 1923; Tai H'wang K'ou, near Lichen; alt. 2200-2600 m., *R. C. Ching*, Wulsin Exped. no. 440, July 9, 1923; near Pingfan, alt. 2350-2800 m., *R. C. Ching*, Wulsin Exped. no. 484, July 12-20, 1923; Choni district, alt. 2750 m., *Wm. Purdom*, no. 1021, in 1910.

This Mock-Orange which seems to be quite common in Kansu, and is there apparently the only representative of the genus, differs markedly from typical *P. pekinensis* in the pubescent calyx and the more or less pubescent leaves and I would have considered it a distinct species, though it agrees in all other characters and in general appearance with typical *P. pekinensis*, if it were not connected with the type by the var. *dasycalyx* Rehd. which has quite glabrous leaves but a pubescent calyx. The pubescence of the leaves is very variable and is sometimes only sparingly present on the veins beneath; the pubescence of the calyx also varies, but in a lesser degree. In their rather dense pubescence Rock's no. 14926 and Ching's 325, 393 and 484 are similar to the type except that in Ching's nos. 325 and 485 the upper surface is more densely scabrid than in the type. Most specimens are strigose only on the veins, while some as nos. 12870, 13102, 14791, 14813, 14948 and 15046 are almost glabrous, but the base of the leaves and the petioles are always pubescent; a few as no. 12749 and to a lesser degree no. 12883 are fairly densely strigose-pubescent above, though only sparingly strigose on the veins beneath. Nos. 13603, 13659 and 13687 are fruiting specimens without leaves. Some vigorous shoots of no. 14948 have leaves up to 13 cm. long and to 8 cm. wide and a few of the racemes have 9 flowers, but the weaker branches do not differ from the other specimens. The bark of all the specimens is exfoliating in large thin flakes and varies from greyish brown to red-brown.

Deutzia albida Batalin in Act. Hort. Petrop. XIII. 97 (1893).—Rehder in Sargent, Pl. Wilson. I. 21 (1913).

SOUTHWESTERN KANSU: Lower Tebbu country: dry arid

slopes of Nyibaku, in Oak forests, alt. 2250 m., no. 14747, Sept. 5, 1926 (shrub 3-4 m.); dry arid slopes of Mayaku near Nyipa village, alt. 2250 m., no. 14790, Sept. 8, 1926 (shrub 3-4.5 m.).

Hydrangea Bretschneideri Dippel, Handb. Laubholz. III. 320 (1893).—Schneider, Ill. Handb. Laubholz. I. 390, fig. 250 h-l, 251 a-b (1905).—Rehder in Sargent, Pl. Wilson. I. 38 (1913).

SOUTHWESTERN KANSU. Tao River basin: mountains of Choni, outskirts of forests, alt. 2900 m., no. 12586, July 1925 (shrub or small tree 4.5 m.; bracts creamy-yellowish with slightly pinkish tinge); in forests of Tao valley, alt. 2600 m., no. 12876, July 1925 (shrub 2-3 m.; bracts creamy-white); between Yaraku, Yarugomba and Lupassu, very common, alt. 2750 m., no. 13174, Aug. 1925 (shrub 2-3 m.; bracts white when flowers open, pink later); Tatsuto, Kadjaku valley in Picea forest, alt. 2800-3000 m., no. 13602, Sept.-Oct. 1925 (shrub 1.5-2 m.; flowers creamy white to pinkish); Maerhku valley, in outskirts of deciduous forests, alt. 2750 m., no. 13604, Sept.-Oct. 1925 (shrub 3-4.5 m.; flowers white, bracts turning); Poyuku, alt. 2900 m., no. 13671, Oct.-Nov. 1925 (shrub 2-3 m.; bracts cream-colored, turning pink on maturity of fruit). Lower Tebbu country: dense forests at Wantsang valley, alt. 2700 m., no. 14858, Sept. 12, 1926 (tree 6 m.; floral bracts cream-colored with purplish tinge); dense forests of Totipana, Sambaku, alt. 3000 m., no. 14884, Sept. 16, 1926 (tree 6 m.; bracts purple); forests of Ngongo, alt. 2600 m., no. 14976, Sept.-Oct. 1926 (shrub 4.5 m.).

Hydrangea Bretschneideri var. *glabrescens* Rehder in Mitt. Deutsch. Dendr. Ges. XXI. 186 (1912).

SOUTHWESTERN KANSU. Lower Tebbu country: dense forests of Wantsang, alt. 2250 m., no. 14670, Aug. 31, 1926 (tree 6 m.; floral bracts cream-colored); in mixed forests of Mayaku, alt. 2750 m., no. 14761, Sept. 5, 1926 (tree 5-6 m.; floral bracts deep purple above, green beneath); Wantsang ku, alt. 2750 m., no. 15005, Sept.-Oct. 1926 (shrub 3 m.; bracts purplish); forests of Wantsang, alt. 2750 m.; no. 15039, Sept.-Oct. 1926 (shrub 4.5 m.; bracts pinkish).

This variety had not yet been recorded from Kansu, while the type had been collected before by Wm. Purdom and R. C. Ching (Wulsin Exped. nos. 336, 835).

Hydrangea longipes Franchet in Nouv. Arch. Mus. Paris, sér. 2, VIII. 228 (Pl. David. II. 45) (1885).—Rehder in Sargent, Pl. Wilson. I. 33, (1913).

SOUTHWESTERN KANSU. Lower Tebbu country: in forest of Wantsang valley, alt. 2450-2600 m., nos. 14679 and 14847, Sept. 1 and 12, 1926 (shrub 1-1.5 m.; floral bracts greenish or yellowish white); dense forests between Hera Sambaku and Dayaya gorge, alt. 3050 m., no. 14782, Sept. 8, 1926 (shrub 1-1.5 m.; bracts pure white); dense

forests of Wantsang ku, alt. 2750 m., no. 15016, Sept.-Oct. 1926 (shrub 1.5 m.; bracts pure white).

This species had not yet been recorded from Kansu. Of no. 14782 there is a photograph in the Arboretum collection of photographs showing the habit of a flowering shrub.

Decumaria sinensis Oliver in Hooker's Icon. xviii. t. 1741 (1888).

WESTERN SZECHUAN: near Ching chuan, along stream, among rocks, no. 12042, April 1925 (shrub 0.75-1 m.; flowers green).

Ribes moupinense Franch var. *tripartitum* Janczewski in Mém. Soc. Phys. Hist. Nat. Genève, xxxv. 300 (Monog. Groseill.) (1907).

SOUTHWESTERN KANSU. Lower Tebbu country: on shaded limestone cliffs, upper Wantsang valley, alt. 2550 m., no. 14704, Sept. 3, 1926 (shrub 1.5 m.; fruit purplish black, in drooping racemes): Pezhu valley in Picea and Abies forests, alt. 2900 m., no. 14947, Oct. 1926 (shrub 1.5 m.; fruit black, in long racemes).

Ribes Meyeri Maximowicz in Mém. Biol. ix. 323 (1873); in Bull. Acad. Sci. St. Pétersb. xix. 260 (1874).—Janczewski in Mém. Soc. Phys. Hist. Nat. Genève, xxxv. 297, fig. 34 (Monog. Groseill.) (1909); in Bull. Acad. Sci. Cracovie Sci. Nat. 1913, p. 724, fig. 6 (1913).

SOUTHWESTERN KANSU. Tao River basin: Maerhku valley, Spruce forest, alt. 2750-3050 m., nos. 12200 and 12201, June 1925 (shrub 2-2.5 m.; flowers greenish or yellowish green, in pendent racemes); Maerhku valley, Choni, outskirts of Spruce forests, alt. 2750 m., no. 12335, June 1925 (shrub 1.5-2.5 m.; flowers greenish red, in small racemes); Maerhku, alt. 2750 m., no. 13536, Oct. 1925 (shrub 1.5-2 m.; fruit black); Maerhku valley, east Tebbu land, no. 13586, Sept.-Oct. 1925 (shrub 1.5-2 m.; fruit red, in short racemes); in Spruce forests of Tebbu country, alt. 3000 m., no. 12474, June 1925 (shrub 2-2.5 m.; with long rambling branches; flowers yellow, in drooping racemes); in Spruce forest, west bank of Tao valley, alt. 3000 m., no. 12888, July 1925 (shrub 2.5 m.); Kwang kei shan, west Tebbu land, alt. 3650 m., no. 13579, Sept.-Oct. 1925 (shrub 1.5 m., fruit black in short racemes). Lower Tebbu country: upper Mayaku, alt. 3000 m., no. 14878, Sept. 16, 1926 (shrub 2-3 m.; fruit black, in short racemes). Upper Tebbu country: near Tongwa, south of Minshan, in Spruce forest, no. 12519, June 1925 (shrub 2.5 m., with straggling branches; flowers reddish yellow).

EASTERN TIBET. Radja and Yellow River gorges: rocky slopes back of Radja gomba, alt. 3300 m., no. 13922, May 20, 1926 (shrub 1.5 m.; flowers red); valley of Nyavruch, north of Radja, lateral valley, along rocky stream bed, no. 13935, May 27, 1926 (shrub 1.5 m.; flowers reddish); northern slopes of river valley, mountains opposite Radja, alt. 3200 m., no. 14000, May 27, 1926 (shrub 2-2.5 m., flowers whitish green); near mouth of Dachso canyon, in Birch and Spruce forests, alt. 3100-3050 m., nos. 14057 and 14059, June 1-2, 1926 (shrub 1.5-2.5

m.; flowers whitish green or reddish purple). **B a v a l l e y**: gravelly slopes, alt. 3200 m., no. 14265, June 1926 (shrub 1.5 m.). **K o k o n o r R e g i o n**: among rocks in Koko ho gorge, alt. 3200 m., no. 13381, Sept. 1925 (shrub 1.5 m.; fruit black).

This seems to be a very variable species; half of the specimens have the leaves finely villous beneath, while the others have glabrous or nearly glabrous leaves; this character is neither correlated with the color of the flowers which varies from whitish green to reddish purple, nor with certain localities. The fruit is black, only of no. 13586 the color is given as red, but the berries seem to be partly immature and appear to be dark red to nearly black in the dried state. No. 12888 differs from the other specimens in the distinctly stalked fruit, the pedicels being up to 2 mm. long. The species has not yet been recorded from Kansu and Tibet.

Ribes Vilmorini Janczewski in Bull. Acad. Sci. Cracovie Cl. Sci. Nat. 1906, p. 290 (Spec. Gen. Ribes, III. 11) (1906); in Mém. Soc. Phys. Hist. Nat. Genève, xxxv. 462, fig. 167, 168 (1909).

SOUTHWESTERN KANSU: Lower Tebbu country: forests of Wantsang valley, steep rocky slopes, alt. 2600 m., no. 14681, Sept. 1, 1926 (shrub 1.5 m.); dense forests of Wantsang, alt. 2750 m., no. 14853, Sept. 12, 1926 (shrub 1.5–2 m.; fruit black); forests of Abies in upper Mayaku, alt. 3000 m., nos. 14873 and 14877, Sept. 16, 1926 (shrub 2–3 m.; fruit black). Upper Tebbu country: shade of Spruce forests among boulders, southern slopes of Minshan, alt. 2925 m., no. 12534, June 1925 (shrub 0.5 m.).

EASTERN TIBET. Grasslands between Labrang and Yellow River: in Serchen valley along stream beds, no. 13916, May 15, 1926 (shrub 1.5 m.). Radja and Yellow River gorges: rocky slopes back of Radja gomba, alt. 3300 m., no. 13923, May 20, 1926 (shrub 1–1.5 m.; flowers green); with Willows on rocky and grassy slopes above Yellow River gorge, alt. 3300 m., no. 13942, May 27, 1926 (shrub 1.5 m., flowers green); mountains southwest of Yellow River en route to Ngolok country, alt. 3450 m., no. 13954, May 24, 1926 (shrub 1.5 m.; flowers green).

The specimens cited above agree with the original description in the short racemes and the green flowers and in the black fruit, but the leaves are larger, decidedly longer than broad with the lobes mostly acuminate or at least acute; the leaves agree, however, with those of Wilson's nos. 913 and 4503 from southwestern Szechuan determined by Janczewski as *R. Vilmorini*.

Ribes glaciale Wallich in Roxburgh, Fl. Ind. II. 514 (1824).—Janczewski in Mém. Soc. Phys. Hist. Nat. Genève, xxxv. 467, fig. 173 (Monog. Groseill.) (1907); in Bull. Acad. Sci. Cracovie Cl. Sci. Nat. 1913, p. 736, fig. 12 (*β minus* Jancz.) (1913).

SOUTHWESTERN KANSU. **Tao River basin:** Choni, in valleys, alt. 2650 m., no. 12290, June 1925 (shrub 1.5–2 m.; flowers blackish red); Maerhku valley, Choni, outskirts of Spruce forests, alt. 2750, no. 12336, June 1925 (shrub 1.5 m.). **Upper Tebbu country:** in crevices of limestone walls, southern slopes of Minshan, alt. 3450 m., no. 12528, June 1925 (flowers reddish brown); in Spruce and Willow forests below Shimen, alt. 3200 m., no. 13056, July–Aug. 1925 (shrub 2 m., with long spreading whip-like branches); forests below outer Shimen, Tsalaku valley, alt. 3350 m., no. 13069, July–Aug. 1925 (shrub 1.5 with ascending branches).

WESTERN SZECHUAN: above Ching chuan mountains, along stream, alt. 1825 m., no. 12046, April 1925 (shrub 1.5 m.).

The specimens enumerated above belong apparently to Janczewski's var. *minus* (l. c.).

Ribes Giraldii Janczewski in Bull. Acad. Sci. Cracovie, Cl. Sci. Nat. 1906, 289 (Spec. Gen. Ribes, III. 10) (1906); in Mém. Soc. Phys. Hist. Nat. Genève, xxxv. 455, fig. 163 (Monog. Groseill.) (1907).

SOUTHWESTERN KANSU: **Tao River basin:** valley near Choni, alt. 2600 m., no. 12274, June 1925 (shrub 0.5–1 m.; flowers greenish, in short racemes). **Lower Tebbu country:** Pezhu valley, alt. 2750 m., no. 14953, Oct. 1926 (stout spiny shrub; fruit red).

CENTRAL KANSU. **Lien ho shan:** alt. 2750 m., no. 13505, Oct. 1925 (shrub 1.5 m., spiny; fruit red).

The specimen from central Kansu has the fruits very sparingly glandular or nearly glabrous, also the leaves are less pubescent than in the typical form and thus the specimen seems to form a transition to *R. pulchellum* Turcz.

Ribes stenocarpum Maximowicz in Bull. Acad. Sci. St. Pétersb. xxvi. 475 (1881); in Mém. Biol. xi. 228 (1881).—Janczewski in Mém. Soc. Phys. Hist. Nat. Genève xxxv. 374, fig. 101 (Monog. Groseill.) (1907).

Grossularia stenocarpa Berger in N. Y. Agric. Exper. Sta. Geneva Tech. Bull. cix. 108 (Taxon. Rev. Curr. Gooseb.) (1924).

SOUTHWESTERN KANSU. **Tao River basin:** Tao ho watershed, Choni, in valleys, often forming hedges around fields, very common, alt. 2600–2750 m., no. 12295, June 1925 (spiny shrub 1.5 m.; flowers greenish); Kadjaku valley near Tatsuto, in forests of Malus, Pyrus, Betula, with Berberis etc., alt. 2700 m., no. 13128, Aug. 1925 (shrub 2.5 m.; fruit greenish yellow); Choni, common in valleys leading from Tao River to the Minshan, alt. 2550 m., no. 13197, Aug. 1925 (shrub 1.5–2.5 m.; fruit greenish yellow). **Lower Tebbu country:** forests of Want-sang valley, in dense jungle of Picea, Abies, Acer, etc., alt. 2750 m., no. 14851, Sept. 18, 1926 (fruit yellow).

EASTERN TIBET. **Radja and Yellow River gorges:** rocky slopes back of Radja, alt. 3350 m., no. 13924, May 20, 1926 (globose shrub, 1.5 m., branching from base).

Ribes spec.

EASTERN TIBET. J u p a r Range: Jupar valley along stream bed, alt. 3200 m., no. 14288, June 1926 (shrub 1.5–2 m.).

This is apparently related to *R. Vilmorini* Jancz.; it has small glabrous leaves not exceeding 2 cm. in length and about as broad, with 3–5 short nearly rounded lobes, and immature subsessile fruits usually three crowded on a very short rachis not exceeding 5 mm.

ROSACEAE

Determined by A. REHDER¹

Spiraea gemmata Zabel, Strauch. Spir. 23 (1893).—Schneider, Ill. Handb. Laubholzk. i. 466, fig. 489 h, 290 f–g (1905).—Rehder in Sargent, Pl. Wilson. i. 411 (1913).

SOUTHWESTERN KANSU. T a o River basin: Maerhku valley, alt. 2800 m., no. 13594, Sept.–Oct. 1925 (shrub 1.5 m.).

Spiraea alpina Pallas, Fl. Ross. i. 35, t. 20 (1784).—Maximowicz in Act. Hort. Petrop. vi. 182 (Adnot. Spir.) (1879).

SOUTHWESTERN KANSU. T a o River basin: Maerhku valley, Spruce forest, alt. 3350 m., no. 12199, June 1925 (shrub 0.5–1 m.; flowers [in bud] apparently dark red; leaves deep green); in forest and outskirts along stream of Shiao ku, beyond Adjūan, alt. 2900 m., no. 12810, July 1925 (shrub 1–1.25 m., with spreading branches; flowers creamy white); Kadjaku, west Tebbu, in forest of Spruce and deciduous trees, alt. 3050 m., no. 13689, Sept.–Oct. 1925 (shrub 1–1.25 m., with horizontal branches).

EASTERN TIBET. R a d j a and Yellow River gorges: northern slopes of river valley, mountains opposite Radja, alt. 3200 m., no. 13999, May 27, 1926 (shrub 1 m.; flowers creamy white); among rocks on banks of Yellow River south of Radja, alt. 3050 m., no. 14113, June 10, 1926 (shrub 1 m.; flowers white).

Spiraea media Schmidt var. *sericea* Maximowicz in Act. Hort. Petrop. vi. 189 (Adnot. Spir.) (1879).

WESTERN SZECHUAN: mountain south of Ching chuan beyond Kiang yu, in gorge of Fu Kiang, no. 12054, March 1925 (shrub about 1 m.; flowers white).

This variety has not yet been recorded from Szechuan. The specimen does not look typical; the umbels are nearly sessile with a cluster of small bract-like leaves at the base and the flowers are rather small.

Spiraea Blumei G. Don var. *microphylla* Rehder, var. nov.

A typo recedit praecipue foliis multo minoribus 6–9 mm. longis distincte 3-nerviis minute crenato-serratis, crasse papyraceis, umbellis parvis, fructibus tantum 3–7.—Frutex metralis, dense ramosus, ramulis brevibus teretibus, glaber; gemmae ovoideae, pauciperulatae, glabrescentes. Folia late ovalia, 6–9 mm. longa, crasse papyracea, apice rotundata, rarius acutiscula, basi rotundata vel late cuneata, supra

¹ *Crataegus*, *Cotoneaster*, *Rosa* and *Rubus* by E. H. WILSON.

medium vel tantum in triente superiore inaequaliter crenato-serrata, basi trinervia, glabra, supra coeruleo-viridia, subtus cinereo-viridia; petioli circiter 1 mm. longi, rubescentes. Umbelli simplices in apice ramulorum 1-1.5 cm. longorum foliis pluribus instructorum; fructus 3-7; pedicelli circiter 5 mm. longi; calyx hypanthio late cupulari vel fere plano, sepalis triangularibus reflexis; follicula erecta, glaberrima, leviter pruinosa, stylo paullo sub apice inserto ascendente.

SOUTHWESTERN KANSU. Lower Tebbu country: arid slopes in limestone gorge, Peshwekiang, no. 14689, Sept. 1, 1926 (shrub 1-1.25 m.; leaf greyish green).

This *Spiraea* is apparently a depauperate form of *S. Blumei* with much smaller rather finely crenate-serrate distinctly 3-nerved leaves of firm texture and with a smaller inflorescence.

Spiraea canescens var. *glaucophylla* Franchet, Pl. Delavay. 200 (1889).

SOUTHWESTERN KANSU. Tao River basin: southern bank, Choni, no. 12266, June 1925 (shrub 1.5 m.; flowers cream-colored); south of Minshan in Spruce forests of Tebbu land, alt. 3000 m., no. 12454, June 1925 (shrub 1 m.; flowers white); Tatsuto and lower slopes of Minshan range, alt. 2600 m., no. 12464, June 1925 (shrub with horizontally spreading branches; flowers white).

This *Spiraea* has not yet been recorded from Kansu, and it is somewhat doubtful whether the specimens cited here belong to this variety, as they differ in the glabrous inflorescence, which is simple or nearly simple with the lower pedicels bearing mostly a leafy bract, as is the case in the type of var. *sulphurea* Batal.

Spiraea uratensis Franchet in Nouv. Arch. Mus. Paris, sér. 2, v. 259 (Pl. David. I. 107) (1883).

SOUTHWESTERN KANSU. Lower Tebbu country: on banks of Peshwekiang, arid gorge above Wantsang lamasery, alt. 2075 m., no. 14799, Sept. 5, 1926 (shrub 1.5-2.5 m.); mountains of Wantsang, valley of Chulungapu, alt. 2125 m., no. 15049, Sept.-Oct. 1926 (shrub 2-2.5 m.).

Of this species I have neither seen the type nor any specimens from the type region, but the specimens which are in fruit seem to agree well with the description, though the flowering branchlets are generally shorter than described by Franchet; the carpels appear glabrous but remnants of pubescence can be seen occasionally along the ventral suture and on the basal part.

Spiraea Wilsonii Duthie in Hort. Veitch. 379 (1906).—Bean in Bot. Mag. CXXXVII. t. 8399 (1911).

SOUTHWESTERN KANSU. Lower Tebbu country: outskirts of forests of Ngongo, alt. 2600 m., no. 14982, Sept.-Oct. 1926 (shrub 1.5 m.).



RHODODENDRON RUFUM Batalin

Shrub 4.5 m. tall, on slopes of Mt. Kwang ke, Minshan range, Kansu

Spiraea longigemmis Maximowicz in Act. Hort. Petrop. vi. 205 (Adnot. Spir.) (1879).—Sargent in Gard. & For. vii. 344, fig. 56 (1894).—De Wildeman in Hort. Thenens. v. 131, t. 192 (1906).

SOUTHWESTERN KANSU. Tao River basin: Choni, forests of Spruce and Willows, alt. 2750–3050 m., no. 12573, July 1925 (shrub 1.5–2.5 m.; flowers cream-colored); outskirts of Spruce forest; Shiaoku valley, alt. 2900 m., no. 12843, July 1925 (shrub 1.5–2 m.; flowers creamy white); valley opposite Choni, grassy slopes, alt. 2600 m., no. 12856, July 1925 (shrub 1.5 m.; flowers cream-colored); banks of Tao River, west of Choni, alt. 2600 m., no. 12861, July 1925 (shrub 2–2.5 m.; flowers creamy white); Maerhku, north Minshan, in Spruce forest; alt. 3050 m., no. 13690, Sept.–Oct. 1925 (shrub 2.5–3 m.). Upper Tebbu country: in Spruce forest below Shimen, alt. 3200 m., no. 13057, July–Aug. 1925 (shrub 1–1.5 m.; flowers creamy white).

Only two of the specimens, nos. 12861 and 13057 represent the typical form with glabrous leaves and glabrous or glabrescent follicles, while the other specimens have more or less pubescent leaves and pubescent follicles, and thus approach *S. Rosthornii* Pritz., but the serration of the leaves is simple or slightly double, not deeply incised or lobulate as in *S. Rosthornii*. Possibly *S. Rosthornii* represents only a variety of *S. longigemmis*.

Sibiraea laevigata Maxim. var. *angustata* Rehder in Sargent, Pl. Wilson. i. 455 (1913).

SOUTHWESTERN KANSU. Tao River basin: Choni, in valleys, alt. 2600 m., no. 12288, June 1925 (shrub 1.5–2 m., flowers white); common on outskirts of Spruce forests, Shiaoku valley, alt. 2900 m., no. 12841, July 1925 (shrub 1.5 m.; flowers cream-colored); Maerhku valley, alt. 2800 m., no. 13595, Sept.–Oct. 1925 (shrub 1.5–2.5 m.; flowers creamy white).

EASTERN TIBET. Radja and Yellow River gorges: Lungmar valley, southeast of Radja, with Willows and Rhododendrons, alt. 3050 m., no. 14011, May 1926 (shrub 1.5 m.; flowers whitish); in stream bed and with Birches in Dachso canyon, north of Radja, alt. 3200 m., no. 14080, June 2, 1926 (shrub 1.5 m.; flowers white). Jupar Range: slopes of valley and along stream bed, alt. 3200 m., no. 14314, June 1926 (shrub 1.5 m.; flowers cream colored).

Two of the specimens, nos. 12841 and 14080, differ from typical var. *angustata* in having a glabrous inflorescence like the type of the species, but they are easily distinguished from typical *S. laevigata* and its var. *croatica* Schneid. by the narrow-lanceolate pointed leaves. Also a plant grown in this Arboretum under no. 7267 and raised from seed collected by E. H. Wilson in 1903 near Sungpan, western Szechuan, has a glabrous inflorescence, while the herbarium specimens collected by him have a pubescent inflorescence.

Sorbaria arborea Schneid. var. *glabrata* Rehder in Sargent, Pl. Wilson. I. 48 (1911).

SOUTHWESTERN KANSU. Tao River basin: cliffs of river valley, alt. 2750 m., no. 12878, July 1925 (shrub 1.5–2.5 m. with drooping branches; flowers white of unpleasant odor); common on banks of valleys, Kadjaku, alt. 2750 m., no. 13143, July 1925 (shrub 1.5 m., flowers cream-colored); outskirts of *Picea* forests, Tatsuto, Kadjaku, alt. 2750–2900 m., no. 13670, Sept.–Oct. 1925 (shrub 1.5–2 m., branching from base; flowers cream-colored).

The specimens cited above differ like Purdom's no. 1018 from Minchow from the typical form in the leaflets having only 8–12 rarely up to 14 pairs of lateral veins.

Exochorda Giraldui Hesse in Mitt. Deutsch. Dendr. Ges. xvii. 191, 219 (1908); xviii. 295, fig. (1909); in Fedde, Rep. Spec. Nov. viii. 347 (1910).—Rehder in Mitt. Deutsch. Dendr. Ges. xxiii. 257 (1914).

SOUTHWESTERN KANSU. Lower Tebbu country: on dry rocky arid slopes of Peshwekiang valley near Tsaoshi and in the gorges, alt. 2000 m., no. 14739, Sept. 2, 1926 (tree 6 m.); drier forests of Tsao-shiku and Mayaku, alt. 2750 m., no. 14996, Sept.–Oct. 1926 (tree 4.5–7.5 m.); dry slopes of Mayaku and Nyiba ku, alt. 2450–2600 m., no. 15059, Sept.–Oct. 1926 (tree 4.5–5.5 m.; bark smooth yellowish flesh-color; leaves dull green; capsule brown).

Crataegus (determined by E. H. WILSON).

Crataegus kansuensis Wilson, sp. nov.

Crataegus Oxyacantha Kanitz in Szechenyi, Keletasz. Utján. Tudom. Ered. II. 810 (Pl. Enum. 22) (1891); in Szechenyi, Wiss. Ergeb. Reis. Ostas. II. 699 (1898).—Not Linnaeus.

Crataegus sanguinea Sargent, Pl. Wilson. I. 180 (1912).—Not Pallas.

Crataegus Wattiana Rehder in Jour. Arnold Arb. V. 180 (1924).—Not Hemsley & Lace.

Frutex vel arbor parva 2.5–8 m. alta; ramuli glabri, rubro-brunnei, nitidi, spinis validis 1–2 cm. longis armati; gemmae subglobosae, rubro-brunneae, nitidae. Folia late ovata, 3–9 (pleraque 4–7) cm. longa et 2–8 (pleraque 3–6) cm. lata, acuta, basi truncata, interdum abrupte cuneata, plus minusve pinnato-lobata, grosse dentata vel interdum duplicato-dentata dentibus triangularibus patentibus glanduloso-mucronulatis, supra intense viridia, subtus pallida, initio supra ad venas pilis paucis cinereis et subtus in axillis nervorum barbata, maturitate glabra; petioli graciles, 1–4 cm. longi, saepe leviter marginata, interdum glandulis paucis breviter stipitatis instructi; stipulae caducae, in turionibus interdum persistentes, foliaceae, ovatae, 0.5–1 cm. longae, dentatae dentibus acutis glanduloso-mucronatis. Inflorescentia corymbosa, glabra, floribus 8–15 vel pluribus albis, bracteis bracteolisque deciduis glandulosis; pedicelli filiformes, bracteolati; calycis dentes ovato-triangulares, 2–3 mm. longi, acuminati; petala suborbicularia, 3–4 mm.

longa et 3–3.5 mm. lata; stamina 15–20, filamentis subulatis, antheris ut videtur albidis; styli 2–3, recti, glabri, stigmatibus capitatis; ovarium in apice villosum. Fructus subglobosus, 8–10 mm. diam., ruber, vestigiis calycis et filamentorum coronatus; pyrenae dorso sulcatae, ventre exsculptae.

SOUTHWESTERN KANSU. Tao River basin: northwest of Choni, forests, no. 12166, June 1925 (tree 6 m. tall; flowers white to cream colored; type); loess plain with Poplars and Pears, alt. 2588 m., no. 14917, Oct. 20, 1926 (tree 4.5–6 m. tall; fruiting co-type); in valleys, alt. 2588 m., no. 14908, Sept. 10, 1926 (tree 3 m. tall); mountains of Toyüku, alt. 2588 m., no. 12921, July 1925 (tree 7.5 m. tall). Lower Tebbu country: Pezhu, banks of Chulungapu, nos. 14939, 14956, Oct. 1926 (tree 4.5–6 m. tall). Upper Tebbu country: southern slopes of lower Yiwaku near Tsaruku, alt. 2374 m., no. 14579, Aug. 28, 1926 (tree 4.5–6 m. tall).

CENTRAL KANSU. Lien hoa shan: Shanshen Miao, alt. 2983 m., nos. 13223, 13500 and 13501, Aug. and Oct. 1925 (tree 2.5–4.5 m. tall).

The following specimen in this herbarium but not collected by Mr. Rock belong to this new species: **WESTERN KANSU:** Peling Mountains, Wm. Purdom, no. 1134, 1910. **KANSU:** vicinity of Lanchow, alt. 2000–2050 m., R. C. Ching, Wulsin Exped. no. 244, June 28–July 4, 1924; vicinity of Lichen, alt. 1750–2050 m., R. C. Ching, Wulsin Exped., no. 366, July 4–8, 1923; between Choni and Lanchow, alt. 2600–3000 m., R. C. Ching, Wulsin Exped. no. 1030, September 19–21, 1923; Lian hwa shan Mountains, southwest of Ti tao chow, alt. 3000–3300 m., R. C. Ching, Wulsin Exped. no. 1017, September 20, 21, 1923. **WESTERN SZECHUAN:** north of Tachien-lu, alt. 3000 m., E. H. Wilson, no. 2987, July 9, 1908. **SHENSI:** Mt. Kin-tan-san, J. Giraldi, July 14, 1897; Thin-kio-tsuen, J. Giraldi, September 25, 1897; Lao-y-san, J. Giraldi, 1897, Lungchow, Li-kia-po, alt. 1400 m., J. Hers, no. 2383, 1924; Huashan, alt. 1000 m., J. Hers, no. 3059, October 31, 1924. **SHANSI:** Suiyuan territory, Saratsi, Wu-ta-chao lamasery, alt. 1000–1500 m., J. Hers, no. 2929, September 15, 1924; Wu-chai-hsien, Ta-nan-kow, alt. 2000–3000 m., Tchuang Kieh, Herb. J. Hers, no. 2019, September 7, 1922; Nan-yang-shan, alt. 1500–2800 m., J. Hers, no. 2725, September 22–30, 1923; Ming-lou, alt. 650 m., C. T. Ren, Herb. Univ. Nanking no. 6120, August 1923. **NORTHWEST CHIHLI:** Siao-wu-tai-shan, Tieh-ling-sze, alt. 1300 m., J. Hers, no. 2118, October 7, 1922.

This new species is characterized by its broadly ovate, more or less pinnately lobed leaves, glabrous at maturity except for a tuft of villose hairs in the axils of the veins on the under surface, with truncate, rarely abruptly cuneate base, and short, mucronate, glandular teeth, by its glabrous inflorescence, deciduous sepals, persistent filaments, villose summit of the ovary, and by its soft pulpy, bright red to orange-colored fruit. The closely related *C. Wattiana* Hemsl. & Lace differs in having more sharply incised leaves, acuminate, even aristate, teeth, no venulous tufts of hairs, larger flowers, persistent calyx teeth, deciduous filaments and the summit of the ovary glabrous. The other related species, *C. sanguinea* Pallas, has longer spines, leaves more or less pubescent and almost invariably cuneate at the base and smaller fruit. The three species agree in having a soft pulpy fruit. Each occupies its own

geographical area. *C. Wattiana* Hemsl. & Lace would appear to be confined to the heart of Asia ranging from Beluchistan in the south to the Altai Mountains in the north. *C. sanguinea* Pallas is confined to northeastern Asia with its southern limits in Manchuria. Our new species is found widespread in northern China from northwestern Chihli through Shansi and Shensi to the western limits of Kansu with its southwest limits north of Tachien-lu in western Szechuan.

Photographs of a tree and of fruiting branches accompanied Rock's no. 14917.

From the material in this herbarium this new *Crataegus* would appear to have been first collected in Shensi in 1887 by J. Giraldi and erroneously identified as *C. pinnatifida* Bunge. In 1908 Wilson found it north of Tachien-lu and his specimen was doubtfully referred to *C. sanguinea* Pallas. In 1910 W. Purdom collected it on the Peling Mountains in western Kansu. In 1922 J. Hers collected it in northwest Chihli, in several districts of western Shansi and also in Shensi. In 1923 R. C. Ching on the F. R. Wulsin Expedition collected it in several places in Kansu. The specimen collected in Kansu by Count Szechenyi and by Kanitz wrongly referred to *C. oxyacantha* L. undoubtedly belongs to our new species which appears to be the only *Crataegus* native of extreme northwestern China.

Crataegus kansuensis f. *aurantiaca* Wilson, forma nova.

A typo recedit fructu aurantiaco.

SOUTHWESTERN KANSU. Lower Tebbu country: Peshwekiang gorge, alt. 2069 m., nos. 14552 (type) and 14802, Aug. 30, Sept. 5, 1926 (tree 4.5–6 m. tall; fruit reddish yellow).

This variety differs from the type only in having orange-yellow fruit, a character apparently common to its related species.

Cotoneaster (determined by E. H. WILSON).

Cotoneaster multiflora Bunge in Ledebour, Fl. Alt. II. 220 (1830).—Ledebour, Ic. Fl. Ross. III. 22, t. 274 (1831).—Schneider, Ill. Handb. Laubholz. I. 755, fig. 424 c, m–n (1906).—Rehder & Wilson in Sargent, Pl. Wilson. I. 170 (1912).—Bean, Trees & Shrubs, Brit. Isles, I. 413, fig. (1914).—Hers in Jour. N. China Branch R. As. Soc. LIII. 109 (1922); Liste Ess. Lign. Honan, 9 (1922).—Rehder in Jour. Arnold Arb. V. 177 (1924).

Cotoneaster reflexa Carrière in Rev. Hort. 1870–71, 520 (1871).—André in Rev. Hort. 1892, 327, fig. 100.

Cotoneaster vulgaris var. *glabrata* Hort. ex Kew Hand-list Trees & Shrubs, I. 213 (1894), as a synonym.

SOUTHWESTERN KANSU. Tao River basin: without special locality, alt. 2708 m., nos. 13517, 14905, Sept.–Oct. 1926 (shrub 3 m. high; leaves coriaceous, pale beneath; fruits in cymes, red); west of Choni, banks of river, alt. 2588 m., no. 12187, June 1925 (shrub 4.5 m. high, flowers white); Taoho watershed, Choni, 3048 m., no. 12296,

June 1925 (shrub 1.3–1.8 m. high; flower buds pinkish white); Minshan range, Tatsuto scrub forest, no. 12433, June 1925 (shrub 1.8–2.5 m. high; flowers pinkish-white); Maerhku, Minshan, alt. 2743 m., no. 14897, Aug.–Sept. 1926 (shrub 1.3–1.8 m. high; fruits red, globose, on slender pedicels, in cymes); on loess banks at Laliku, no. 14914, Oct. 1926 (tree 4.5 m. tall; fruits crimson-carmine). Lower Tebbu country: banks of stream, Peshwekiang gorge, alt. 2069 m., no. 14801, Sept. 1926 (shrub 2.5–3 m. high, branches spreading horizontally, fruits red); Wantsang ku, alt. 2134 m., no. 15027, Sept.–Oct. 1926 (shrub 1.5 m. high; fruits red, in racemes). Upper Tebbu country: Drot-suku valley, beyond Tsaruku, gravelly slopes, Peshwekiang, no. 14577, Aug. 1926 (shrub 1.3–1.8 m. high, branches spreading, drooping; fruits dark red).

WESTERN KANSU: between Tangar and Machuan, on loess banks, alt. 2893 m., no. 13395, Oct. 1925 (shrub 1–1.3 m. high; fruits red); Komang ssu Spruce forest, alt. 2983 m., no. 13296, Oct. 1925 (shrub 1.5–1.8 m. high; fruits red, in poor cymes).

EASTERN TIBET. Radja and Yellow River gorges: grassy slopes, among boulders in Yellow River valley, east of Radja, alt. 3048 m., nos. 14016 and 14138, May and June 1926 (shrub 1.3–1.8 m. high; flowers white). Ba valley: gravelly slopes, alt. 3198 m., no. 14268, June 1926 (shrub 1.6 m.; flowers white); J u p a r Range: along stream bed of Jupar valley, alt. 3198 m., nos. 14291 and 14292, June 1926 (shrub 1.3–2.5 m. high; flowers white).

Cotoneaster multiflora var. *calocarpa* Rehder & Wilson in Sargent, Pl. Wilson, 1. 170 (1912).—Rehder in Jour. Arnold Arb. v. 178 (1924).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Chingolo, above Pezhu, no. 14992, Sept.–Oct. 1926 (shrub 3 m. high; fruits red, globose, in racemes).

CENTRAL KANSU. Lien ho a s h a n: Shanshen Miao, alt. 2743 m., nos. 13480 and 13493, Oct. 1925 (shrub 1.5–3.6 m. high; leaves dull, leaf ribs red; fruits brilliant deep red).

Cotoneaster racemiflora var. *soongorica* Schneider, Ill. Handb. Laubholz. 1. 754, fig. 424i (1906).—Rehder & Wilson in Sargent, Pl. Wilson, 1. 168 (1912).—Rehder in Jour. Arnold Arb. v. 177 (1924).

Cotoneaster Nummularia Trautvetter in Bull. Soc. Nat. Moscou, xxxiii. pt. 1. 531 (Enum. Pl. Songor. Schrenk.) (1860).

Cotoneaster nummularia var. *soongoricum* [sic] Regel & Herder in Bull. Soc. Nat. Moscou, xxxix. pt. 11. 58 (Pl. Semenov. no. 381) (1866).

Cotoneaster Fontanesii var. *soongorica* Regel in Act. Hort. Petrop. 11. 313 (1873).

SOUTHWESTERN KANSU. Tao River basin: valley of Toyuku below Adjüan, alt. 3588 m., no. 12823, July 1925 (shrub 1.5–1.8 m. high, conspicuously grey-white; leaves grey-green; flowers many, white); valley beyond Toyu, en route to Toyuku, alt. 2893 m., no. 12826, July 1925 (shrub 1.3–1.5 m. high, greyish green); Maerhku to Poyüku, Choni

district, alt. 2743 m., no. 13523, Oct. 1925 (shrub 1.5–1.8 m. high; leaves dark green; fruits red).

Cotoneaster adpressa Bois in Vilmorin & Bois, *Frut. Vilmorin*. 116, fig. (1904); in Fedde, *Rep. Spec. Nov.* III. 226 (1906).—Rehder & Wilson in Sargent, *Pl. Wilson*. I. 155 (1912).—Rehder in *Jour. Arnold Arb.* v. 175 (1924).

Cotoneaster horizontalis var. *adpressa* Schneider, *Ill. Handb. Laubholz.* I. 744, figs. 418 k-m, 419 e' (1906).

SOUTHWESTERN KANSU. **Tao River basin:** east of Choni, on banks of river, alt. 2528 m., no. 12204, June 1925 (spreading shrub, 0.3 m. high, flowers red); beyond Taochow, new city, on grassy slopes, alt. 3048 m., no. 13203, August 1925 (prostrate shrub; fruits red); Shiaoku, road to Tsarekika, east Tebbu, no. 13535, Oct. 1925 (shrub 0.3 m. high, fruits red). **Lower Tebbu country:** valley of Somba near Hera, banks at Ngongo, alt. 2588–2893 m., nos. 14766 and 14972, Sept.—Oct. 1926 (prostrate shrub; fruits red, globose, subsessile).

CENTRAL KANSU. **Lien hoa shan:** high mountains, among rocks, alt. 3198–3498 m., no. 13475, Oct. 1925 (prostrate shrub; fruit red).

EASTERN TIBET. **Grasslands between Labrang and Yellow River:** on rocks in Gochen valley, gorge south of Kzangar and south of Radja, alt. 3198 m., no. 13908, May 14, 1926 (prostrate shrub; flowers rose). **Radja and Yellow River gorges:** on rocks, alt. 3198 m., no. 14116, June 10, 1926 (prostrate shrub).

Cotoneaster horizontalis Decaisne in *Fl. des Serres*, xxii. 168 (1877).—André in *Rev. Hort.* 1885, 136, fig. 25–25; 1889, 348, fig. 89–90. t.—Schneider, *Ill. Handb. Laubholz.* I. 744, fig. 418 g-i, 419 e (1906).—Rehder & Wilson in Sargent, *Pl. Wilson*. I. 154 (1912).—Rehder in *Jour. Arnold Arb.* v. 175 (1924).

Cotoneaster acuminata var. *prostrata* Dippel, *Handb. Laubholz.* III. 414 (1893).—Not Hooker f.

Cotoneaster Davidiana, Hort. ex Kew *Hand-list Trees and Shrubs* I. 213 (1894), as a synonym.

Cotoneaster microphylla Diels in *Bot. Jahrb.* xxix. 386 (1901), in part.—Not Wallich.

CENTRAL KANSU. **Lien hoa shan:** high mountains, among rocks, alt. 3198–3498 m., nos. 12698 and 13478, July and Oct. 1925 (prostrate shrub; fruits red).

Cotoneaster Zabeli Schneider, *Ill. Handb. Laubholz.* I. 749, fig. 420 f-h (1906); in Fedde, *Rep. Nov. Sp.* III. 220 (1906).—Rehder & Wilson in Sargent, *Pl. Wilson*. I. 166 (1913).—Hers in *Jour. N. China Branch R. As. Soc.* LIII. 109 (1922); *Liste Ess. Lign. Honan*, 9 (1922).—Rehder in *Jour. Arnold Arb.* v. 175 (1924).

Cotoneaster vulgaris Pritzl in *Bot. Jahrb.* xxix. 385 (1900).—Not Lindley.

Cotoneaster racemiflora var. *Veitchii* Hers in *Jour. N. China Branch R. As. Soc.* LIII. 109 (1922); *Liste Ess. Lign. Honan*, 9 (1922).—Not Rehder & Wilson.

SOUTHWESTERN KANSU. **Lower Tebbu country:** along

stream in Wantsang valley, no. 14829, Sept. 1926 (shrub 1.8–3 m. high, branches long, spreading; fruits red).

Cotoneaster nitens Rehder & Wilson in Sargent, Pl. Wilson. i. 156 (1912).

SOUTHWESTERN KANSU. Lower Tebbu country: on rocks back of Wantsang ssu, alt. 2438 m., no. 14806, Sept. 1926 (prostrate shrub; fruits red); forests of Ngongo, alt. 2438 m., no. 14981, Sept.–Oct. 1926 (shrub 1.8–3 m. high, branches, slender, rambling; leaf thickly tomentose, grey beneath; fruit carmine, on short slender pedicels).

Cotoneaster obscura var. *cornifolia* Rehder & Wilson in Sargent, Pl. Wilson. i. 162 (1912).

SOUTHWESTERN KANSU. Lower Tebbu country: outskirts of Wantsang valley, no. 14834, Sept. 1926 (shrub 3–4.5 m. high, branches long, whip-like; fruits black).

Cotoneaster acutifolia Turczaninow in Bull. Soc. Nat. Moscou, v. 190 (1832).—Maximowicz in Mém. Div. Sav. Acad. Sci. St. Pétersb. ix. 471 (Ind. Fl. Pekin.) (1859).—Rehder & Wilson in Sargent, Pl. Wilson. i. 158 (1912).—Hers in Jour. N. China Branch R. As. Soc. LIII. 109 (1922); Liste Ess. Lign. Honan, 9 (1922).—Rehder in Jour. Arnold Arb. v. 176 (1924).

Cotoneaster acutifolia var. *pekinensis* Koehne, Deutsche Dendr. 158 (1893).

Cotoneaster moupinensis F. N. Meyer in U. S. Dept. Agric. Bur. Pl. Indust. Invent. Seeds Pl. Imp. xxxvii. 59, no. 36739 (1916).—Not Franchet.

Cotoneaster acutifolia var. *villosula* Hers in Jour. N. China Branch R. As. Soc. LIII. 109 (1922); Liste Ess. Lign. Honan, 9 (1922).—Not Rehder & Wilson.

SOUTHWESTERN KANSU. Tao River basin: Tayuku, east Tebbu land, alt. 2893–3048 m., no. 13548, Sept.–Oct. 1925 (shrub 1.5–1.8 m. high; fruits black, on short pedicels).

WESTERN KANSU: in Spruce forests of Komang ssu, alt. 3013 m., no. 13294, Oct. 1925 (shrub 1.8–3 m. high; fruits black, single).

EASTERN TIBET. Radja and Yellow River gorges: near mouth of Dachso canyon, north of Radja, in Birch and Spruce forest, alt. 3108 m., no. 14060, June 1926 (shrub 1.3–1.5 m. high; flowers pink).

Cotoneaster acutifolia var. *villosula* Rehder & Wilson in Sargent, Pl. Wilson. i. 158 (1912).—Rehder in Jour. Arnold Arb. v. 176 (1924).

SOUTHEASTERN KANSU. Tao River basin: banks of Tao river, east of Choni, no. 12210, June 1925 (small tree 2.5–3 m. high; flowers white). Lower Tebbu country: Wantsang forests, alt. 2284–2438 m., nos. 14713 and 14724, Sept. 1926 (shrub 1.5–3 m. high, branches horizontal; fruits purplish black, in pairs).

Cotoneaster tenuipes Rehder & Wilson in Sargent, Pl. Wilson. i. 171 (1912).

SOUTHWESTERN KANSU. Tao River basin: banks of Tao River,

east of Choni, no. 12209, June 1925 (shrub 1.3–1.5 m. high; flowers white).

EASTERN TIBET. Radja and Yellow River gorges: among boulders in Yellow River valley, near Radja, alt. 3048 m., no. 14139, June 1926 (shrub 1.8 m. high; flowers pink). Jupar Range: gravelly rocky bluffs overlooking Yellow River, west of mouth of Jupar valley, alt. 3198, no. 14320, June 1926 (shrub 1–1.3 m. high; flowers white). Kokonor Region: rocky slopes of Koko gorge, no. 13269, Sept. 1925 (shrub 1.5–1.8 m. high, branching from the base; fruits black).

Cotoneaster lucida Schlechtendal in Linnaea, xxvii. 541 (1855).—Schneider, Ill. Handb. Laubholz. i. 750, fig. 421 c, 423 a–c, (1906).—Bean, Trees, Shrubs Brit. Isles, i. 412 (1914).—Rehder, Man. Cult. Trees Shrubs, 357 (1927).

Cotoneaster acutifolia Lindley in Ledebour, Fl. Ross., ii. 92 (1844).—Gartenwelt, v. 245, fig. p. 247 (1901).—Not Turczaninow.

Cotoneaster nigra var. *acutifolia* Wenzig in Linnaea, xxxviii. 183 (1874).

SOUTHWESTERN KANSU. Lower Tebbu country: forests between Pezhu and Ngongo, alt. 2893 m., no. 14980, Sept.–Oct. 1926 (shrub 1.8–3 m. high; fruits black, in pairs at ends of twigs).

Pyracantha crenulata Roemer in Fam. Nat. Syn. III. 220 (1847).—Schneider, Ill. Handb. Laubholz. i. 761, fig. 430 c–d, 431 g–h (1906).

Crataegus crenulata Roxburgh, Fl. Ind. ii. 509 (1832).—Lindley in Bot. Reg. xxx. t. 52 (1844).

NORTHEASTERN YUNNAN: near Laoyatan, alt. 1525 m., no. 12007, Jan. 1925 (shrub 1.5 m.; berries scarlet).

Sorbus thianschanica Ruprecht in Mém. Acad. Sci. St. Pétersb. sér. 7, xiv. 46 (Sert. Tiansch.) (1869).—Schneider, Ill. Handb. Laubholz. i. 668, fig. 366 c–d, 367 d (1906).

Pyrus thianschanica Franchet in Ann. Sci. Nat. sér. 6, xvi. 287 (1883), "*P. thianschanica*."—Regel in Gartenfl. xl. 7, fig. 4 (1891).—Hooker f. in Bot. Mag. cxxvii. t. 7755 (1901).

WESTERN KANSU: top of ridge in Spruce forest, Komang ssu, north-east of Tankar, alt. 3150 m., no. 13286, Oct. 1925 (tree 4.5 m.; fruit red).

NORTHWESTERN KANSU. Richthofen range and adjacent region: Kanglung ssu road in gorge which leads up to pass from Liyüanku, no. 13318, Nov. 1925 (tree 4.5 m.; fruit red).

EASTERN TIBET. Radja and Yellow River gorges: in Spruce forest, southwest of Yellow River, opposite Radja, alt. 3350 m., no. 13958, May 24, 1926 (tree 4.5–5.5 m.; flowers white); banks of river, south of Radja, alt. 3050 m., no. 13998, May 27, 1926 (tree 4.5 m.; petioles and rachis red; flowers white); north of Radja, alt. 3200 m., no. 14030, May 28, 1926 (tree 4.5 m.); at camp, near mouth of stream bed of Dachso canyon, north of Radja, alt. 3100 m., no. 14062, May 29, 1926 (tree 4.5–6 m.; flowers white). Jupar Range: in valley with Spruces and Willows, alt. 3200 m., no. 14282, June 26, 1926 (tree 4.5 m.; flowers white); in Spruce forest of Jupar valley, alt. 3500 m., no. 14321.

June 1926 (tree 7.5 m.; flowers white to pink). K o k o n o r R e g i o n : Koko gorge, no. 13267, Sept. 1925 (tree 4.5–6 m., with wide-spreading branches; fruit brilliant red); Lalaku, below Kokonor pass, alt. 3000 m., no. 13372, Sept. 1925 (shrub 2 m.; fruit red).

This species had not yet been recorded from eastern Tibet and Kansu. The young leaves and the inflorescences of almost all specimens are quite glabrous or show only occasionally a few scattered hairs except the fruiting specimen no. 13267 which has the petiole and rachis and the base of the midrib on the under side of the leaflets sparingly villous. In the fruiting specimens, no. 13318 and less so in no. 13372, the carpels are more or less exserted, in some fruits more than one-half. Two flowering trees of *S. tianschanica* are shown in a photograph of the vegetation in the lower part of Dachso canyon taken on June 1, 1926.

Sorbus tapashana Schneider in Bull. Herb. Boissier sér. 2, vi. 313 (1906); Ill. Handb. Laubholz. i. 672, fig. 369 b (1906).—Koehne in Sargent, Pl. Wilson. i. 482 (1913).

SOUTHWESTERN KANSU. T a o R i v e r b a s i n : mountains, alt. 3350 m., no. 12198, June 1925 (tree 4.5–6 m.; leaves dark green; flowers white); Minshan range, Mt. Kuang ke, alt. 3350 m., no. 12394, June 1925 (shrub 1.5–2.5 m.); mountains of Maerhku valley, alt. 3050 m., no. 12555, June 1925 (tree 4.5–6 m.; flowers white, in large open cymes); ridges back of Adjüan, with Birch, Rhododendron and Spruce, alt. 3200–3750 m., no. 12654, July 5, 1925 (tree 4.5–5.5 m.; flowers white); forests of Shiao ku, with Spruce, Larix, etc., alt. 3050 m., no. 12813, July 1925 (tree 5.5 m.); along road, in Spruce and Rhododendron forest from Kuang ke to Tebbu land, alt. 3500 m., no. 13189, August 1925 (tree 4.5–5.5 m.; fruit red); Tsarekika to Taku, alt. 3200–3350 m., no. 13532, Oct. 1925 (tree 7.5 m.; leaves bright green; fruit brilliant red); Drakana, Tebbu country, alt. 3200–3350 m., no. 13566, Sept.–Oct. 1925 (shrub or tree 6 m.; fruit globose red). L o w e r T e b b u c o u n t r y : with Abies and Rhododendron scrub, alt. 3450 m., no. 14769, Sept. 6, 1926 (tree or shrub 1.5–2 m.; branches stout; fruit red). U p p e r T e b b u c o u n t r y : in Abies forest with Rhododendron, at foot of Shimen, alt. 3500 m., no. 13075, July–Aug. 1925 (tree 4.5–5.5 m.); among limestone boulders, in gorge leading to Drakana, southern slopes of Minshan, alt. 3350 m., no. 14637, Aug. 25, 1926 (tree 4.5 m.; fruit red).

The specimens cited above seem to agree well with the description of *S. tapashana* of which I have seen no specimens, though the serration of the leaflets is usually somewhat coarser than shown in Schneider's figure. From the closely related *S. Rehderiana* Koehne it differs chiefly in the broader more pubescent and grayish leaflets, with more numerous teeth, in the scarcely winged rachis, in the larger inflorescence and in the red fruits. *Sorbus tapashana* had not been recorded before from Kansu.

Sorbus hupehensis Schneid. var. *aperta* Schneider in Bot. Gaz. LXIII. 403 (1917).

Sorbus aperta Koehne in Sargent, Pl. Wilson. I. 465 (1913).

SOUTHWESTERN KANSU. Lower Tebbu country: dense forests of Wantsang, alt. 2225 m., no. 14672, Aug. 31, 1926 (tree 9 m., trunk black; fruit white, in large red panicles); forests of Chingolo above Pezhu, alt. 2600 m., no. 14990, Sept.-Oct. 1926 (tree 12-15 m., trunk 60 cm. diam.; fruit white, in ample panicles); forests of Wantsang ku, alt. 2450 m., no. 15024, Sept.-Oct. 1926 (tree 10-12 m., trunk black 60 cm. diam.; fruit white).

CENTRAL KANSU. Lien ho a shan: Shanshen Miao, alt. 2750 m., no. 13479, Oct. 1925 (tree 10-12 m., trunk 30 cm. diam.; fruit white).

Sorbus Prattii Koehne in Sargent, Pl. Wilson. I. 468 (1913).

SOUTHWESTERN KANSU. Tao River basin: Maerhku river valley, alt. 3200 m., no. 13540, Sept.-Oct. 1925 (tree 7.5 m.; fruit white and deep pink); Maerhku valley, alt. 2900 m., no. 14902, Aug.-Sept. 1926 (tree 4.5-5.5 m., trunk 30 cm. diam.; fruit large, white with pinkish tint); Tatsuto, Kadjaku valley, west Tebbu land, alt. 2800 m., no. 13563, Sept.-Oct. 1925 (shrub or tree 2-3 m. tall; fruit white, size of pea); with Picea and Abies in Choni ku, alt. 3050 m., no. 14919, Oct. 19, 1926 (tree 4.5 m., with long straight ascending branches; fruit white).

CENTRAL KANSU. Lien ho a shan: alt. 3050 m., no. 13494, Oct. 1925 (shrub 3-4.5 m.; fruit white).

This species has not yet been recorded from Kansu. Two of the specimens, nos. 13540 and 14919 are leafless and it is therefore somewhat doubtful whether they belong to this species.

Sorbus Koehneana Schneider in Bull. Herb. Boissier, sér. 2, VI. 316 (1906); Ill. Handb. Laubholz I. 681, fig. 3740 (1906).—Koehne in Sargent, Pl. Wilson. I. 471 (1913).

SOUTHWESTERN KANSU. Tao River basin: Choni, alt. 2600 m., no. 12163, June 1925 (small tree or shrub, 3 m.); valley of Laliku, in Spruce forests, alt. 3050 m., no. 12863, July 1925 (tree 4-5 m.; flowers white); between Yaruku, Yaru gomba and Lupassu, alt. 2750 m., no. 13171, Aug. 1925 (shrub or small tree with few ascending branches); Adjün mountain, east Tebbu land, alt. 3050 m., no. 13524, Oct. 1925 (shrub 2.5-3 m.; fruit white); Tatsuto, Kadjaku valley, west Tebbu land, alt. 2900 m., no. 13589, Sept.-Oct. 1925 (shrub 1.5-2 m.; leaflets silvery white beneath; fruit white). Lower Tebbu country: Wantsang ku forests, alt. 2700 m., no. 15025, Sept.-Oct. 1926 (shrub 1.5-2.5 m.; fruit white); outskirts of Birch forests and Spruces along banks of streams, Wantsang valley, alt. 2150-2450 m., no. 14699, Sept. 3, 1926 (tree 4.5 m., oftener shrub; fruit white); banks of stream, Tsao shi valley, alt. 2150 m., no. 14741, Sept. 2, 1926 (shrub or small tree; fruit white); forests between Pezhu and Ngongo, alt. 2900 m., no. 14987, Sept.-Oct. 1926 (tree 4.5-6 m.; fruit white). Upper Tebbu country:

along streams, alt. 3375 m., no. 12497, June 1925 (tree 3.5–4.5 m.; flowers white).

CENTRAL KANSU: Lien ho a sh an: on slopes, alt. 3050 m., no. 12699, July 1925 (shrub 1.5–2.5 m.); along grassy slopes with Spruces, alt. 3050 m., no. 12763, July 14–20, 1925 (shrub 3–3.5 m.; leaves dull green; flowers white); alt. 2750 m., no. 13477, Oct. 1925 (shrub or small tree 3–3.5 m.; fruit white).

WESTERN KANSU: mountains of Komang ssu, mossy Spruce forests, northeast of Tankar, alt. 3050 m., no. 13287, Oct. 1925 (small tree 3.5–4.5 m.; fruit white).

EASTERN TIBET. K o k o n o r r e g i o n: Koko gorge, along stream, no. 13268, Sept. 1925 (shrub 1.5–2.5 m., much branched; fruit pure white).

Pyrus ussuriensis Maxim. var. *ovoidea* Rehder in Jour. Arnold Arb. II. 60 (1920).

Pyrus ovoidea Rehder in Proc. Am. Acad. L. 228 (Syn. Chin. *Pyrus*) (1915).—Bailey in Stand. Cycl. Hort. v. 2869, fig. 3278 (1916).

CENTRAL KANSU. Lien ho a sh an: Shansen Miao, alt. 2750 m., no. 13499, Oct. 1925 (tree 9–12 m.; leaves dark green; fruit greenish yellow).

This Pear has not yet been recorded from Kansu nor with certainty from western China generally. The single fruit with Rock's specimens is about 2.5 cm. long, apparently obovoid, with persistent calyx, greenish yellow and borne on a stiff stalk 5 cm. long.

Pyrus pashia Hamilton apud D. Don, Prodr. Fl. Nepal. 236 (1825).—Decaisne, Jard. Fruit. I. 328, t. 7 (1872).—Collett, Fl. Siml. 169, fig. 47 (1902).—Rehder in Proc. Am. Acad. L. 238 (Syn. Chin. *Pyrus*) (1915).

SOUTHWESTERN KANSU. T a o R i v e r b a s i n: Choni, forests of Tao valley, west of Tao River, alt. 2900 m., no. 12131, May 1925 (tree 6–12 m.; flowers white, margin of petals red); Choni district, alt. 2600 m., no. 13558, Sept.–Oct. 1925 (tree 9–12 m.; leaves red, on red petioles; fruit yellowish red); banks of river at Choni, alt. 2600 m., no. 14924, Oct. 20, 1926 (tree 12 m., trunk 30–60 cm. diam., blackish; fruit red and yellow, on stout peduncles); Tayaku, east Tebbu land, alt. 2900 m., no. 13549, Sept.–Oct. 1925 (tree 4.5–6 m.; leaves dark green, petioles red; fruit yellow, 2.5 cm. across). L o w e r T e b b u c o u n t r y: Peshwekiang, beyond Ngongo, alt. 2200 m., no. 14565, Aug. 29, 1926 (tree 7–9 m.; with round crown, trunk 30 cm. diam., with blackish furrowed bark; fruit greenish yellow); banks of Peshwekiang, alt. 2000 m., no. 14807, Sept. 1926 (tree 7–9 m., trunk 30–60 cm. diam.; fruit yellow, globose); banks of Peshwekiang near Wangtsang ssu, no. 14816, Sept. 1926 (tree 4.5–6 m.; fruit yellowish red, 2.5 cm. diam.); Peshwekiang gorge, near Wangtsang gomba, no. 14826, Sept. 1926 (tree 9 m.; flowers white; fruit yellowish red, 2.5 cm. diam.); mountain back of Wangtsang,

valley of Chulungapu, alt. 2600 m., no. 15043, Sept.-Oct. 1926 (tree 9-11 m., bark blackish, deeply furrowed; fruit red); below Nyipa, along Mayaku stream, alt. 2300 m., no. 15054, Sept.-Oct. 1926 (tree 15 m., trunk 60 cm. diam.). Upper Tebbu country: below Pashe-teuga, Drotsuku, alt. 2300 m., no. 15090, Oct. 1926 (tree 4.5-6 m.; leaves dark glossy green; fruit brilliant red).

CENTRAL KANSU. Lien hoa shan: along banks of streams, alt. 2750 m., no. 12751, July 14-20, 1925 (tree 9 m.; fruit red); Shan shen Miao, alt. 2900 m., no. 13496, Oct. 1925 (tree 6-9 m.; fruit globose, 2.5 cm. diam.).

Most of the fruits of the specimens cited above are globose and measure 2-3 cm. in diameter, but no. 13558 has distinctly pear-shaped fruit; the calyx is persistent. The young leaves and inflorescence of no. 12131 are quite glabrous except the inner surface of the sepals, while in no. 14826 the pedicels and the outside of the calyx are slightly villous. From *P. pashia* var. *kumaoni* Stapf which also has a glabrous inflorescence these specimens differ in the triangular-lanceolate acuminate calyx-lobes. Probably the plant of northwestern China constitutes a distinct geographical variety.

Malus baccata Borkhausen, Handb. Forstbot. II. 1280 (1803).—Rehder in Sargent, Pl. Wilson. II. 291 (1915).

Pyrus baccata Linnaeus, Mant. 75 (1767).—Regel in Gartenfl. XI. 202, t. 364, fig. 1-5 (1862).

CENTRAL KANSU. Lien hoa shan: in meadows along stream of Ha kou valley, alt. 2750 m., no. 12781, July 1925 (tree 9-11 m.; leaves dull dark green above, paler beneath); common only on northern slopes, alt. 2750 m., nos. 13218 and 13220, August 1925 (shrub or small tree 3-6 m.; fruit red); slopes of Mt. Hako, alt. 2750 m., no. 13498, Oct. 1925 (shrub or small tree 4.5-6 m.; leaves bright green; fruit bright red); Shanshen Miao, alt. 2900 m., no. 13502, Oct. 1925 (tree 9-12 m.; leaves pale beneath, red-veined; fruit red).

Malus Halliana Koehne, Gatt. Pom. 27 (1890).—Rehder in Sargent, Trees & Shrubs, I. 35, t. 18 (1902); in Sargent, Pl. Wilson. II. 285 (1915).

WESTERN SZECHUAN: south of Ching chuan, growing along rocky river bank, alt. 1200 m., no. 12026, March 1925 (tree 7-9 m.; flowers rich pink).

The locality given by Rock and the fact that all the flowers have only five petals would indicate that the plant is growing wild; the flowers are large, 3 to nearly 4 cm. in diameter, and have only 3 styles.

Malus transitoria Schneider, Ill. Handb. Laubholzk. I. 726 (1906); in Fedde, Rep. Spec. Nov. III. 178 (1906).—Rehder in Sargent, Pl. Wilson. II. 295 (1915).—Hughes in Kew Bull. Misc. Inform. 1920, p. 207, fig. A.

Pyrus transitoria Batal. in Act. Hort. Petrop. XIII. 95 (1893).

SOUTHWESTERN KANSU. Tao River basin: west of Choni, banks of river, alt. 2600 m., no. 12188, June 1925 (shrub or tree 4.5-6 m.; flowers white); river valley, Choni district, alt. 2600 m., no. 13539,

Sept.-Oct. 1925 (tree 6 m.; fruit yellow and red); near Choni, alt. 2750 m., no. 14910, Sept. 10, 1926 (shrub or tree to 6 m., spineless; fruit red or yellow); Choni ku, banks of river; alt. 2600 m., no. 14922, Oct. 20, 1926 (tree 6-7 m., trunk 60 cm. diam.; fruit small red and yellow).

Of no. 14922 there are photographs in the Arboretum collection under nos. 11346 (see plate 12), 11347, and 11348 showing the habit of flowering trees and the bark which differs from that of the following species in the ridges being broken into small thick scales, not into continuous somewhat flaky ridges as in *M. toringoides*.

Malus toringoides Hughes in Kew Bull. Misc. Inform. 1920, p. 205, fig. B.—Stapf in Bot. Mag. CXLVIII. t. 8948 (1923).

Malus transitoria var. *toringoides* Rehder in Sargent, Pl. Wilson. II. 286 (1915).

SOUTHWESTERN KANSU. Tao River basin: banks of Tao River, east of Choni, alt. 2550 m., no. 12215, June 1925 (tree 7.5 m.; flowers white); outskirts of Pine forest at Tatsuto, Kadjaku valley, no. 12478, June 1925 (tree 10 m.; flowers white); outskirts of Pine forests, Kadjaku valley, alt. 2650 m., no. 12483, June 1925 (tree 18-24 m., with ascending branches; flowers white); near camp beyond Tatsuto Kadjaku valley, nos. 13132 and 13133, July 1925 (tree 8 and 15 m.; flowers white; see photographs M-10842 and 10871); Kadjaku valley, en route to Tebbu land, alt. 2800 m., nos. 13543 and 13544, Sept.-Oct. 1925 (tree 8-21 m.; leaves small; fruit oval, yellow or yellowish red; same trees as nos. 13132 and 13133); alt. 2750, no. 13559, Sept.-Oct. 1925 (tree 4.5-7 m.; fruit oval, red); Poyuku, alt. 2900 m., no. 13565, Oct. 1925 (tree 4.5-6 m.; leaves 3-lobed glabrous; fruit oval, yellowish red); along river bank, alt. 2750, no. 13568, Oct. 1925 (tree 4.5-6 m.; leaves shallow-trilobed; fruit oval yellowish red; banks of river at Choni, alt. 2600 m., no. 14923, Oct. 20, 1926 (tree 12 m., trunk 30-60 cm. diam., bark longitudinally furrowed, greyish drab color; fruit cherry red; see photographs M-11342-11344). Lower Tebbu country: Mayaku along stream near Zehga, alt. 2450 m., no. 15074, Sept.-Oct. 1926 (shrub or tree 3-4.5 m.; fruit yellow and scarlet, on red pedicels).

The leaves of this species are extremely variable in shape and to a lesser degree in size. No. 15074 from the lower Tebbu country matches almost exactly the type specimen, Wilson's no. 1285 from Tachien lu, with narrow partly undivided and partly lobed leaves; no. 14923 is similar but the leaves are of thinner texture and all are undivided or only slightly lobulate and so are the flowering specimens, nos. 12483 and 13132 which further differ in the leaves being generally broader, more ovate in shape and often with rounded or nearly rounded base, closely resembling those of the American *M. fusca* (Raf.) Schneid. The other specimens have deeply lobed leaves with rather broad lobes, the leaves being about 3 cm. long in no. 13559 and mostly 4-6 cm. long in nos. 12215, 12478 and 13133. The nos. 13543, 13544, 13565 and 13568 have no leaves, but the first two numbers are according to the collector

from the same trees as nos. 13132 and 13133 which are from the same locality and of which one has the leaves not lobed and the other deeply lobed. Though the specimens with undivided or mostly undivided leaves appear to be quite distinct from those with deeply lobed leaves, their close connection is shown by the fact that the plants growing in this Arboretum and raised from seed of Wilson's no. 1285 have deeply lobed leaves much like those of Rock's no. 13559 but generally more elongated, while the leaves of Wilson's no. 1285 are mostly undivided or only slightly lobed like Rock's no. 14923. The photographs represent the habit of flowering trees and groves of trees (nos. M—10842, 10871 and 11341) and the bark (nos. M—11342, 11343 and 11344).

Malus kansuensis × *toringoides*, hybr. nov.

SOUTHWESTERN KANSU. Tao River basin: near Choni ku, no. 14925, Oct. 20, 1926 (tree 6–7.5 m., with spreading crown; fruit pale yellow with reddish tinge; see photograph under M—11345).

This specimen is exactly intermediate between the supposed parents which both occur in the region where this number was collected, as shown by no. 14918 of *M. kansuensis* and no. 14923 of *M. toringoides*, which were collected together with no. 14925 on the same day near Choni. From *M. kansuensis* the leaves differ in the less close and fine and not distinctly setose-acuminate serration, in the obsolete net of veinlets beneath, in the deeper lobing with a more elongated middle lobe and in the presence of a few undivided leaves with cuneate base; the fruits are not or very sparingly punctulate. From *M. toringoides* the leaves differ in being generally 3-lobed with broader and shorter lateral lobes and in the closer serration and the fruits in having mostly a few dots and a few grit-cells. The photograph represents a flowering tree with the trunk dividing near the base into several stems.

Malus kansuensis Schneider in Fedde, Rep. Spec. Nov. III. 178 (1906).—Rehder in Sargent, Pl. Wilson. II. 286 (1915); Man. Cult. Trees Shrubs, 397 (1927).

Pyrus kansuensis Batalin in Act. Hort. Petrop. XIII. 94 (1893).

Eriolobus kansuensis Schneider, Ill. Handb. Laubholz I. 726, fig. 403 d-d¹, 404 d-e (1906).

SOUTHWESTERN KANSU. Tao River basin: at Toyü, alt. 2450 m., no. 12897, July 1925 (tree 3–4 m.); between Yaruku, Yaru gomba and Lupassu, alt. 2750 m., no. 13172, August 1925 (shrub or tree 4.5 m.); bank of stream in Choni ku, alt. 2900 m., no. 14918, Oct. 20, 1926 (tree 4.5–6, with erect branches; leaves dark glossy green above, gray velvety-tomentose beneath; fruit dull red); in Yierh ku alt. 2900 m., no. 14938 (tree 4.5 m., with erect branches). Lower Tebbu country: dense forests of Wantsang valley, alt. 2125–2200 m., no. 14663, Aug. 31, 1926 (tree 4.5 m.; trunk with black smooth bark; fruit yellow and red).

CENTRAL KANSU. Lien hoa shan: forest of Spruces and Birches, alt. 3050 m., no. 12748, July 14–20, 1925 (tree 4.5–6 m.; flowers

white); Shanshen Miao, alt. 2900 m., no. 13497, Oct. 1925 (tree 6-7 m.; leaves woolly beneath; fruit red).

Kerria japonica De Candolle in Trans. Linn. Soc. XII. 157 (1817); Prodr. II. 541 (1825).—Siebold & Zuccarini, Fl. Jap. I. 183, t. 98, 99, fig. i, iii (1841).

SOUTHERN KANSU: between Motzuping and Pikou, on grassy slopes and banks, alt. 1400 m., no. 12067, April 1925 (shrub 0.5-0.75 m.; flowers deep yellow).

Rubus (determined by E. H. WILSON).

Rubus xanthocarpus Bureau & Franchet in Jour. de Bot. v. 46 (1891).—Regel in Gartenfl. XLI. 108 (1892).—Bretschneider, Hist. Eur. Bot. Discov. China, 1028 (1898).—Focke in Bibl. Bot. LXXII. 29 (Spec. Rub.) (1910); in Sargent, Pl. Wilson. I. 49 (1911).—Rehder in Jour. Arnold Arb. v. 194 (1924).

CENTRAL KANSU. Lien ho a shan: meadows along stream of Ha kou valley, alt. 2743 m., no. 12775, July 14-20, 1925 (flowers white).

Rubus corchorifolius Linnaeus fil., Suppl. 263 (1781).—Franchet in Nouv. Arch. Mus. Paris, sér. 2, v. 261 (Pl. David. I. 109) (1883).—Focke in Bibl. Bot. LXXII. 131 (Spec. Rub.) (1911); in Sargent, Pl. Wilson. I. 51 (1911).—Bailey, Gent. Herb. I. 30 (1920).—Rehder in Jour. Arnold Arb. v. 194 (1924).

WESTERN SZECHUAN: north of Kiang yu, on rocky cliffs along the Fu Kiang River, no. 12032, March 1925 (shrub 1 m. high; flowers white); without precise locality, no. 12025, March 1925 (shrub 1-1.3 m. high; flowers white).

Rubus amabilis Focke in Bot. Jahrb. XXXVI. beibl. LXXXII. 53 (1905); in Bibl. Bot. LXXII. 163, fig. 70 (Spec. Rub.) (1911); in Sargent, Pl. Wilson, I. 52 (1911).—Rehder in Jour. Arnold Arb. v. 195 (1924).

SOUTHWESTERN KANSU. Tao River basin: beyond Tatsuto in Spruce forest, alt. 2618 m., no. 12442, June 1925 (shrub 1.3 m. high, flowers white); wooded slopes of Maerhku valley, south of Choni, Tao watershed, alt. 2983 m., no. 12554, June 1925 (flowers white); in valley of Toyüku, alt. 2588 m., no. 12809, July 1925 (scandent shrub 1.5-1.8 m. high; flowers white); Poyuku, alt. 2833-3048 m., no. 13581, Sept.-Oct. 1925 (shrub 1 m. high); gulches of Minshan, near Choni, alt. 2743 m., no. 14895, Aug.-Sept. 1926 (shrub 1-1.3 m. high).

Rubus pileatus Focke in Hooker's Icon. XX. in textu sub t. 1952, p. 3 (1891); in Bot. Jahrb. XXXVI. beibl. LXXXII. 53 (1905); in Bibl. Bot. LXXII. 167 (Spec. Rub.) (1911).—Rehder in Jour. Arnold Arb. v. 195 (1924).

SOUTHWESTERN KANSU. Tao River basin: mountains of Choni, outskirts of Birch and Spruce forest, alt. 2743 m., no. 12578, July 1925 (shrub 1 m. high; flowers white); slopes of Maerhku valley, alt. 3048 m., no. 12951, July 25, 1925 (woody climber); in Larix forest of Tsarekika, east Tebbu, alt. 3198 m., no. 13546, Sept.-Oct. 1925 (shrub 1-1.3 m. high). Lower Tebbu country: along Wantsang

stream, alt. 2438 m., no. 14701, Sept. 3, 1926 (shrub 1.8 m. high); forests of Ngongo, alt. 2743 m., no. 14979, Sept.-Oct. 1926 (rambling shrub).

Rubus idaeus var. *strigosus* Maximowicz in Bull. Acad. Sci. St. Pétersb. xvii. 161 (1872); in Mém. Biol. viii. 394 (1872).—Palibin in Act. Hort. Petrop. xiv. 116 (1895).—Rehder in Jour. Arnold Arb. v. 199 (1924).

SOUTHWESTERN KANSU. Tao River basin: Kwang kei shan, along stream, alt. 3348 m., no. 13553, Oct. 1925 (shrub 0.3 m. high).

WESTERN KANSU: mossy Spruce forest of Komang ssu, alt. 3048 m., no. 13285, Oct. 1925 (shrub 0.3 m. high).

Potentilla fruticosa L. var. *parvifolia* Wolf in Bibl. Bot. xvi. 58 (Monogr. Potent.) (1908).—Rehder & Wilson in Sargent, Pl. Wilson. ii. 304 (1915).

Potentilla parvifolia Fischer apud Lehmann, Nov. Stirp. Pugill. iii. 6 (1831).

SOUTHWESTERN KANSU. Tao River basin: west of Choni, rocky slopes, alt. 2700 m., no. 12173, June 1925 (shrub 1-1.25 or less; flowers deep yellow); dry slopes between Choni and Kadjaku ferry, alt. 2625 m., no. 12460, June 1925 (shrub 1 m.; flowers yellow); in Willow and Birch forest, west bank of river, alt. 2900 m., no. 12881, July 1925 (flowers small, deep golden yellow); Maerhku, northern Minshan, alt. 3000 m., no. 13672, Oct. 1925 (shrub 0.75-1 m.; flowers deep yellow). Upper Tebbu country: alpine meadows, summit of Kwang kei, alt. 3815 m., no. 13096, Aug. 3, 1925 (shrub 30 cm.; flowers rich golden yellow).

CENTRAL KANSU. Lien ho a shan: among scrub and forests, alt. 3050 m., no. 12746, July 14-20, 1925 (shrub 1 m.; flowers yellow).

EASTERN TIBET. Radja and Yellow River gorges: Lungmar valley, 15 li south of east Radja, alt. 3350 m., no. 14005, May 1926 (shrub 1.25 m.; flowers yellow); Deyang valley, east of Radja, alt. 3050 m., no. 14140, June 1926 (shrub 0.60-1 m.; flowers yellow). Ba valley: gravelly slopes, alt. 3200 m., no. 14264, June 1926 (shrub 1-1.75 m.; flowers yellow). Jupa Range: on rocky slopes and cliffs of schist in upper Jupa valley, alt. 3650 m., no. 14348, June 1926 (shrub 1-1.25 m.; flowers yellow). Kokonor Region: below pass, Lalaku, alt. 3050 m., no. 13357, Sept. 1925 (shrub 0.60-1 m.; flowers yellow); head of Koko gorge, alt. 3650 m., no. 13370, Sept. 1925 (flowers yellow); sand dunes northeast Kokonor shores, alt. 3300-3500 m., no. 13391, Sept. 1925 (shrub 0.60-1 m.).

Wolf describes this variety as having 7 leaflets, but many of the specimens cited above have leaves with only 5 leaflets, as nos. 12460, 12881, 13096, 13370, 13672 and 14384, while nos. 12173, 12746 and 1357 have 5-7 leaflets and like those of the preceding numbers rather sparingly pubescent; nos. 13391, 14005, 14140 and 14264 all from eastern

Tibet, have prevailinglly 7 rather densely silky-pubescent leaflets not exceeding 5 mm. in length.

Potentilla fruticosa var. *Purdomii* Rehder in Jour. Arnold Arb. III. 209 (1922); Man. Cult. Trees Shrubs 423 (1927).

SOUTHWESTERN KANSU. Tao River basin: summit of Mt. Lissedzadza, along stream, alt. 3650 m., no. 12599, July 1925 (shrub 0.6–1 m.; flowers lemon yellow); among rocks, mountains west of Adjüan, alt. 3050 m., no. 12805, July 1925 (shrub 1–1.25 m.; flowers cream-colored).

This variety is nearest to var. *parvifolia* Wolf and chiefly distinguished by its pale yellow flowers and by its 5 leaflets being generally broader, 7–10 mm. long and glaucescent and glabrous beneath except the silky midrib. It was originally described from cultivated plants raised from seed collected by Wm. Purdom in northern China; it has not been recorded before from Kansu.

Potentilla fruticosa L. var. *Veitchii* Bean, Trees & Shrubs Brit. Isles, II. 223, fig. (1914).—Rehder & Wilson in Sargent, Pl. Wilson. II. 303 (1915).

Potentilla Veitchii Wilson in Gard. Chron. ser. 3, L. 102 (1911).

Potentilla davurica var. *Veitchii* Jesson in Bot. Mag. cxli. t. 8637 (1915).

EASTERN TIBET. Jupar Range: in stream bed of valley with Willows, alt. 3200 m., no. 14281, June 26, 1926 (shrub 1–1.25 m.; flowers white). Radja and Yellow River gorges; mountains opposite Radja, alt. 3350 m., no. 14164, June 1926 (shrub 1.25 m.; flowers white). Ba valley: gravelly slopes, alt. 3200 m., no. 14263, June, 1926 (shrub 1.5 m.; flowers white). Kokonor Region: rocky cliffs in valley of Chunku ho, alt. 3050 m., no. 13369, Sept. 1925.

Potentilla fruticosa L. var. *daurica* Seringe in De Candolle, Prodr. II. 579 (1825).—Rehder in Jour. Arnold Arb. v. 201 (1924), as “var. *daurica* Lehmann”; Man. Cult. Trees Shrubs, 423 (1927).

Potentilla davurica Nestler, Monog. Potent. 31, 1^{bis} fig. B (1916).—Poiret, Encycl. Math. Bot. Suppl. iv. 541 (1816).—Wolf in Bibl. Bot. xvi. 60 (Monog. Potent.) (1908).

Potentilla fruticosa β . Lehmann, Monog. Potent. 32 (1820).

Potentilla glabra Laddiges, Bot. Cab. x. t. 944 (1826).

SOUTHWESTERN KANSU. Tao River basin: Choni, southern banks, no. 12267, June 1925 (shrub 0.6–1 m.; flowers white); along banks of stream, Kadjaku, alt. 2700 m., no. 12453, June 1925 (shrub 0.3–6 m.; flowers large, white); summit of Mt. Lissedzadza, eastern end of Minshan range, along brook near camp, alt. 3650 m., no. 12594, July 1925 (flowers white); along streams on rocks and cliffs, near Adjüan, alt. 3050 m., no. 12641 (shrub 1 m.; flowers white); Maerhku, northern Minshan, alt. 2750–3050 m., no. 13673, Sept.–Oct. 1925 (shrub 1–1.25 m.; flowers white).

The varietal combination is often credited to Lehmann who, however, called it *P. davurica* β with *P. davurica* Nestler as synonym. The com-

bination was apparently first made by Seringe who changed the spelling of the name to "dahurica."

Potentilla biflora Willdenow herb. apud Schlechtendal in Mag. Ges. Naturf. Freunde Berlin, vii. 297 (1816).—Lehmann, Monog. Potent. 30, 192, t. 20 (1820).—Rydberg in Mem. Dept. Bot. Columbia Univ. ii. 83, t. 33, fig. 6–9 (1898).—Wolf in Bibl. Bot. xvi. 70 (1908).

SOUTHWESTERN KANSU. Upper Tebbu country: trail to Kuang ke, west of Shimen, Minshan range, on limestone boulders, alt. 3950, no. 13006, July–Aug. 1925 (forming large cushions; flowers rich yellow).

This is a low form with one-flowered branchlets 1.5–2 cm. long and except at the apex nearly glabrous leaflets. The species has apparently not yet been recorded from northern China.

Potentilla Salesoviana Stephan in Mém. Soc. Nat. Moscou, ii. 6, t. 3 (1809).—Wolf in Bibl. Bot. xvi. 74 (1908), "P. Salesowiana."

Potentilla Salesovii Stephan apud Willdenow, Enum. Hort. Berol. 552 (1809).—Lehmann Monog. Potent. 35, t. 1 (1820).

Comarum Salesovianum Ascherson & Graebner, Syn. Mitteleur. Fl. vi. 663 (1904).

NORTHWESTERN KANSU. Richthofen Range and adjacent region: slopes of the Pientuku gorge, eastern end of the Kanchow Nanshan, no. 13321, Nov. 1925 (shrub 1–1.25 m.).

EASTERN TIBET. Jupar Range: in stream bed of valley, with Willows, alt. 3200 m., no. 14280, June 26, 1926 (shrub 1–1.25 m.; flowers large white).

This species has not yet been recorded from Kansu nor from any other province of northern China.

Rosa (determined by E. H. WILSON).

Rosa chinensis f. *spontanea* Rehder & Wilson in Sargent, Pl. Wilson. ii. 320 (1915).

Rosa indica Hemsley in Jour. Linn. Soc. xxiii. 249 (1887), in part.—Focke in Bot. Jahrb. xxix. 405 (1900).—Henry in Gard. Chron. ser. 3, xxxi. 438, fig. 170 (1902).—Not Linnaeus, nor Loureiro.

SOUTHERN KANSU: beyond Pikow on banks of Wen hsien ho, no. 12077, April 1925 (flowers deep red).

A very interesting discovery and the first record of this Rose growing in Kansu.

Rosa sertata Rolfe in Bot. Mag. cxxxix. t. 8473 (1913).—Osborn in Gard. Chron. ser. 3, liv. 166, fig. 63 (1913).—Willmott, Gen. Rosa, ii. 493 (1914).—Bean, Trees & Shrubs Brit. Isl. ii. 443 (1914).—Rehder & Wilson in Sargent, Pl. Wilson. ii. 327 (1915).

Rosa Webbiana Vilmorin & Bois, Frut. Vilmorin. 93 (1904).—Not Wallich.

Rosa macrophylla f. *gracilis* Focke in Not. Bot. Gard. Edinburgh, vii. 69 (1911), as to no. 4442.

SOUTHWESTERN KANSU. Lower Tebbu country: Wantsang

valley, in Spruce and Birch forest, alt. 2438 m., no. 14696, Sept. 3, 1926 (shrub 1.3 m. high; fruit red).

Rosa Biondii Crépín in Bull. Soc. Bot. Ital. 1897, 233.—Rehder in Jour. Arnold Arb. v. 207 (1924).

SOUTHWESTERN KANSU. Tao River basin: valley of Poyü, alt. 2743 m., no. 12793, June–July 1925 (shrub 1.3–1.5 m. high; flowers white). Upper Tebbu country: in Willow and Spruce forest below Shimen, alt. 3198 m., no. 13055, July–August 1925 (shrub 1.3 m. high; flowers white to cream color); forests below outer Shimen, Tsaluku valley, alt. 3348 m., no. 13068, July–August 1925 (shrub 1.5 m. high).

CENTRAL KANSU. Lien ho a shan: Spruce forest, alt. 2983–3048 m., no. 12730, July 14–20, 1925 (shrub 1.3 m. high; flowers white tinged cream).

Rosa bella Rehder & Wilson in Sargent, Pl. Wilson. II. 341 (1915).—Rehder in Jour. Arnold Arb. v. 206 (1924).

? *Rosa macrophylla hypoleuca* Franchet in Nouv. Arch. Mus. Paris, ser. 2, v. 267 (Pl. David. I. 115) (1883).

Rosa sp. F. N. Meyer in U. S. Dept. Agric. Invent. Seeds Pl. Imp. xxxvii. 75, no. 36857, 36858 (1916).

Rosa Sweginzowii Hers in Jour. N. China Branch R. As. Soc. LIII. 115 (1922); Liste Ess. Lign. Honan, 26 (1922).—Not Koehne.

SOUTHWESTERN KANSU. Tao River basin: Maerhku valley, southeast of Choni, alt. 3048 m., no. 12553, June 1925 (shrub 1.3–1.5 m. high; flowers rich carmine).

WESTERN KANSU: Komang ssu, alt. 2983 m., no. 13293, Oct. 1925 (shrub 1.3 m. high; fruit red).

EASTERN TIBET. Kokonor Region: Koko gorge, no. 13265, Sept. 1925 (shrub 1.5 m. high; fruit scarlet). Radja and Yellow River gorges: valley of Yellow River gorges, north of Radja, alt. 3198 m., no. 14035, May 28, 1926 (shrub 1.3–1.5 m. high); south of Yellow River, facing north towards Radja, alt. 3198 m., no. 14110, June 10, 1926 (shrub 1.5–1.8 m. high; flowers deep red). Ba valley: gravelly slopes, alt. 3198 m., no. 14267, June 1926 (shrub 1.8–2.5 m. high, flowers rich red).

Rosa Sweginzowii Koehne in Fedde, Rep. Spec. Nov. VIII. 22 (1910).—Rehder & Wilson in Sargent, Pl. Wilson. II. 324 (1915).—Rehder in Jour. Arnold Arb. v. 207 (1924).

SOUTHWESTERN KANSU. Tao River basin: banks of Tao, Choni, alt. 2588–3013 m., nos. 12869, 12884 and 14927, July, Oct. 1926 (shrub, 1.3–3 m. high; flowers pink, rose-red); banks of Toyuku, below Adjüan, alt. 2743 m., no. 12824, July 1925 (shrub 1.5–2.5 m. high; flowers pale pink); gulches of northern Minshan, alt. 2893 m., no. 14896, Aug.–Sept. 1926 (shrub 1.3–1.8 m. high); Maerhku valley, alt. 2743–2893 m., nos. 14903 and 14907, Aug.–Sept. 1926 (shrub 1.5–4.5 m. high); Kadjaku, west Tebbu, alt. 2893 m., nos. 13570 and 13573, Oct.

1925 (shrub 1.3–2.5 m. high). Lower Tebbu country: in Abies forest along streams, Totipana, southern Minshan, Sambaku, alt. 2743 m., no. 14882, Sept. 1926 (shrub 3–4.5 m. high; flowers white); forests between Pezhu and Ngongo, alt. 2438 m., no. 14988, Sept.–Oct. 1926 (shrub 1.8–3 m. high).

EASTERN TIBET. Kokonor Region: Koko gorge, nos. 13264 and 13266, Sept. 1926 (shrub 1.3–2.5 m. high).

Rosa Davidii Crépín in Bull. Soc. Bot. Belg. XIII. 253 (Prim. Ros. Monog. 260) (1874).—Franchet in Nouv. Arch. Mus. Paris, sér. 2, v. 270 (Pl. David. I. 118) (1883).—Rehder & Wilson in Sargent, Pl. Wilson. II. 322 (1915).—Rehder in Jour. Arnold Arb. v. 205 (1924).

CENTRAL KANSU. Lien ho a shan: Shanshen Miao, alt. 2893 m., no. 13495, Oct. 1925 (shrub 1.3–1.5 m. high).

Rosa Willmottiae Hemsley in Kew Bull. Misc. Inform. 1907, 317; in Bot. Mag. CXXXIV. t. 8186 (1908).—Willmott, Gen. Rosa, I. 195, t. (1911).—Rehder & Wilson in Sargent, Pl. Wilson. II. 329 (1915).

SOUTHWESTERN KANSU. Tao River basin: Choni district, dry scrub, no. 14912, Oct. 1926 (shrub 1.3–1.5 m. high); Maerhku, Choni, alt. 2588 m., no. 14892, Aug.–Sept. 1926 (shrub 1.8–2.5 m. high); Tatsuto, Kadjaku valley, west Tebbu, alt. 2803 m., no. 13591, Sept.–Oct. 1925 (shrub 1.3–1.5 m. high). Lower Tebbu country: Pezhu, Peshwekiang, alt. 2194 m., no. 14944, Oct. 1926 (shrub 1.5 m. high).

EASTERN TIBET. Kokonor Region: forest on Mt. Ngiu sin shan, Babo, alt. 2893 m., no. 13299, Oct. 1925 (shrub 1–1.3 m. high).

Rosa omeiensis Rolfe in Bot. Mag. CXXXVIII. t. 8471 (1912).—Bean, Trees & Shrubs Brit. Isles, II. 438 (1914).—Rehder & Wilson in Sargent, Pl. Wilson. II. 331 (1915).—Rehder in Jour. Arnold Arb. v. 210 (1924).

Rosa sericea Crépín in Bull. Soc. Bot. Belg. XIV. 151 (1875), as to Przewalski's specimen; XXV. Compt. Rend. 9 (1886); in Bull. Soc. Bot. Ital. 1897, 234.—

Diels in Not. Bot. Gard. Edinburgh, VII. 238 (Pl. Chin. Forrest.) (1912).—Not Lindley.

Rosa sericea, f. *glabrescens* Franchet, Pl. Delavay. 220 (1890).

Rosa sericea, f. *intermedia* Franchet, l. c. (1890).

Rosa sericea, f. *denudata* Franchet, l. c. (1890).

Rosa sericea, f. *inermis eglandulosa* Focke in Not. Bot. Gard. Edinburgh, v. 69 (Pl. Chin. Forrest.) (1911).

Rosa sericea, f. *aculeata eglandulosa* Focke, l. c. 70 (1911).

Rosa Sorbus Léveillé in Fedde, Rep. Spec. Nov. XIII. 338 (1914).

SOUTHWESTERN KANSU. Tao River basin: Choni district, alt. 2528 m., nos. 12177, 12211, 12461 and 13547, June, Sept.–Oct. 1925 (shrub 1.3–1.8 m. high, stem red; flowers white); west bank of Tao valley, alt. 2743–2983, nos. 12889 and 13575, July, Sept.–Oct. 1925 (shrub 0.6–1.3 m. high); forests of Shiaoiku, along brooks, alt. 3048 m., no. 12807, July 1925 (shrub 3–6–4.5 m. high); Poyüku, in river valley, no. 13537, Oct. 1925; south of Minshan, below Shimen, alt. 3048 m., no. 12485, June 1925 (shrub 1–1.5 m. high; flowers white); Maerhku,

alt. 2743 m., no. 14900, Aug.-Sept. 1926 (shrub 1.5-2.5 m. high); Tatsuto, Kadjaku valley, west Tebbu, alt. 2893 m., no. 13590, Sept.-Oct. 1925 (shrub 1.3 m. high). Upper Tebbu country: forests below outer Shimen, Tsaluku valley, alt. 3228-3348 m., nos. 13070, 13103, July-Aug. 1925 (shrub 1.5-2.5 m. high).

EASTERN TIBET. Kokonor Region: Koko gorge, no. 13271, Sept. 1925 (shrub 1-1.8 m. high).

Rosa xanthina Lindley, Monog. Ros. 132 (1820).—Hemsley in Jour. Linn. Soc. xxiii. 254 (1887).—Bretschneider, Hist. Eur. Bot. Discov. China, 861 (1898).—F. N. Meyer in U. S. Dept. Agric. Bur. Pl. Indust. Invent. Seeds Pl. Imp. xiii. 170, no. 21620 (1908).—Rehder & Wilson in Sargent, Pl. Wilson. ii. 342 (1915).—Hers in Jour. N. China Branch R. As. Soc. liii. 115 (1922); Liste Ess. Lign. Honan, 26 (1922).—Rehder in Jour. Arnold Arb. v. 208 (1924).

Rosa pimpinellifolia Bunge in Mém. Div. Sav. Acad. Sci. St. Pétersb. ii. 100 (Enum. Pl. Chin. Bor. 26) (1833).—Maximowicz in Mém. Div. Sav. Acad. Sci. St. Pétersb. ix. 471 (Ind. Fl. Pekin.) (1859).—Hemsley in Jour. Linn. Soc. xxiii. 253 (1887).—Bretschneider, Hist. Eur. Bot. Discov. China, 333 (1898).—Not Linneaus.

Rosa sp. F. N. Meyer in U. S. Dept. Agric. Bur. Pl. Indust. Invent. Seeds Pl. Imp. xii. 37, no. 17469 (1907).

Rosa xanthinoides Nakai in Tokyo Bot. Mag. xxxii. 218 (1918); in Fl. Sylv. Kor. vii. 33, t. 6 (1918).

SOUTHWESTERN KANSU. Tao River basin: west of Choni, banks of river, alt. 2588 m., no. 12186, June 1925 (shrub 1.3 m. high; flowers yellow).

Maddenia hypoleuca Koehne in Pl. Wilson. i. 56 (1911).

SOUTHWESTERN KANSU. Tao River basin: mountains of Choni, west of Tao ho, outskirts of Picea forest, alt. 3050 m., no. 12148, May 1925 (shrub 2.5-3 m.); Choni, in forest among Spruces, alt. 2750-3050 m., no. 12577, July 1925 (tree 4.5 m.). Upper Tebbu Country: Spruce forest, among boulders, southern slopes of Minshan, alt. 2950 m., no. 12531, June 1925 (small tree or shrub 2.5-3 m.).

This species has been collected in Kansu before by Wm. Purdom near Minchow and by R. C. Ching (Wulsin Exped. no. 391) at Hsia mo k'ou near Lichen.

Prunus salicina Lindley in Trans. Hort. Soc. vii. 239 (1830).—Koehne in Sargent, Pl. Wilson i. 580 (1913).

Prunus triflora Roxburgh, Hort. Bengal. 38 (1814), nom. nud.; Fl. Ind. ed. 2, ii. 501 (1832), sphalm. "trifolia."—Nakai, Fl. Sylv. Kor. v. 42, t. 26 (1916).

SOUTHWESTERN KANSU. Tao River basin: Choni, valley of Tao ho, nos. 12112, 12121, May, 1925 (shrub 2-2.5 m. or tree 4.5 m., with round crown and short branching trunk; flowers whitish pink or white); Poyuku, alt. 2900 m., no. 13527, Oct. 1925 (tree 3-4.5 m.; leaves pale beneath; fruit edible); in Birch and Picea forest, with *Rosa*, *Salix* *Cotoneaster* etc., alt. 2750-2900 m., no. 14909, Sept. 10, 1926

(shrub or tree 3-4.5 m.). Lower Tebbu country: wild on banks of Peshwekiang, alt. 2300 m., no. 14570, Aug. 29, 1926 (tree 4.5 m.; fruit yellow, sweet, edible).

WESTERN SZECHUAN: north of Kiang yu, rocky cliffs along Fu Kiang, no. 12030, March 1925 (shrub 1.75 m.; flowers pink); along Fu Kiang river, among rocks, alt. 1200 m., no. 12035 (shrub 1.25 m.).

This species had not been recorded from Kansu before.

Prunus Persica Batsch, Beytr. Entw. Gesch. Naturr. 30 (1801).—Rehder in Jour. Arnold Arb. v. 213 (1924).

WESTERN SZECHUAN: mountain south of Ching chuan beyond Kiang, in gorge of Fu Kiang, no. 12055, March 1925 (shrub 1 m.; flowers deep reddish pink).

Prunus Armeniaca Linnaeus, Spec. 474 (1753).—Koehne in Sargent, Pl. Wilson. i. 278 (1912).—Beck in Reichenbach, Icon. Fl. Germ. xxv. pt. II. 5, t. 85 (1913).

Armeniaca vulgaris Lamarck, Encycl. Méth. i. 2 (1780).

EASTERN TIBET. Radja and Yellow River gorges: Radja lamasery, cultivated, alt. 3050 m., no. 13926, May 20, 1926 (tree 7.5 m.; flowers whitish pink).

Prunus tangutica Koehne in Sargent, Pl. Wilson. i. 276 (1912).—Rehder in Jour. Arnold Arb. v. 215 (1924).

Amygdalus communis var. *tangutica* Batalin in Act. Hort. Petrop. xii. 163 (1892).

Amygdalus tangutica Korshinsky in Bull. Acad. Sci. St. Pétersb. sér. 5, xiv. 94 (1901).

Prunus dehiscens Koehne in Sargent, Pl. Wilson. i. 271 (1912).—Rehder & Wilson in Sargent, Pl. Wilson. iii. 432 (1917).—Rehder in Jour. Arnold Arb. iii. 24 (1921).—Anon. in Gard. Chron. ser. 3, lxxvii. 200, fig. (1925).

SOUTHWESTERN KANSU. Tao River basin: over the rocky hillsides of Choni, wild shrub, no. 12095, May 1925 (flowers with pale reddish tinge); mountains of Choni, alt. 2750 m., no. 12143, May, 1925 (shrub 1.75-2 m.; flowers pale pink); Choni district on dry banks, alt. 2600 m., no. 13555, Sept.-Oct. 1925 (spiny compact shrub 2-2.5 m.); dry loess slopes, alt. 2600 m., no. 14889, Aug.-Sept. 1926 (thorny shrub, stem black; fruit dry, velvety).

The additional material cited above has convinced me of the already suspected identity of *P. tangutica* and *P. dehiscens*. The size of the leaves, which after the flowers of *P. dehiscens* had become known, constituted the chief distinguishing character, cannot be considered any longer a constant character with the material now before me. Typical *P. dehiscens* from Szechuan has leaves 1-3 cm. long, R. C. Ching's specimen from Tao chow, Kansu, (Wulsin Exped. no. 831) has leaves 2-3 cm. long, Rock's no. 14889 has them 2-4 and Rock's no. 13555 3-5.5 cm. long and up to 1.4 cm. broad, which agrees with the measurements given by Batalin for *P. tangutica*. The fruits of Rock's nos. 13555 and 14889 are distinctly dehiscent, a character which did not show in Potanin's specimens, upon which Batalin based his description, as his fruits were not mature.

Prunus tomentosa Thunberg, Fl. Jap. 203 (1784).—Siebold & Zuccarini, Fl. Jap. i. 51, t. 22 (1837).—Koehne in Sargent, Pl. Wilson. i. 268 (1912).—Rehder in Jour. Arnold Arb. v. 217 (1924).

SOUTHERN KANSU: mountain of Motzuping, no. 12061, April 1925 (shrub 1-1.75 m.; flowers white).

SOUTHWESTERN KANSU. Tao River basin: mountain of Choni, alt. 2600 m., no. 12096, May 1925 (shrub 1.50-2.50 m.; flowers white); mountain of Choni, alt. 2750 m., no. 12113, May 1925 (flowers pinkish white); Choni, valley of the Tao ho, alt. 2700 m., nos. 12108 and 12122, May 1925 (shrub 1.75-2 m.; flowers pink); west of Choni, open scrub and forests, alt. 2700 m., no. 12175, June 1925 (shrub 1.75-2 m.).

Prunus stipulacea Maximowicz in Bull. Acad. Sci. St. Pétersb. xxix. 97 (1883); in Mém. Biol. xi. 689 (1883).—Koehne in Sargent, Pl. Wilson. i. 258 (1912).

SOUTHWESTERN KANSU. Tao River basin: mountains of Choni, in forests and on banks of streams, alt. 3050, no. 12116, May 1925 (shrub 2-2.5 m.; flowers pink); Choni, forests west of Tao ho, no. 12124, May 1925 (shrub 1-2 m.; flowers pink); mountains of Choni west of Tao River, in Picea forest, alt. 3200 m., no. 12127, May 1925 (shrub 1 m.); Choni, river valley, no. 12262, June 1925 (shrub or small tree 3-3.5 m.; flowers pink); Maerhku valley, Choni, outskirts of Spruce forest, alt. 2750 m., no. 12334, June 1925 (tree 3.5-4.5 m.; flowers pink); banks of river and forests, alt. 2600-2750 m., no. 12872, July 1925 (shrub 1.75 m., branching from base; leaves dull green; fruit ovoid-oblong, red). Lower Tebbu country: in Abies and Rhododendron forests, Sambaku, alt. 3200 m., no. 14767, Sept. 7, 1926 (shrub or small tree, 4.5 m.; foliage pale green; fruit single, red). Upper Tebbu country: in crevices of limestone walls, southern slopes of Minshan, alt. 3500 m., no. 12527, June 1925 (small tree 3-4 m.; flowers pale pink); in valleys with Willow and Birches, alt. 3350 m., no. 13108, July-Aug. 1925 (shrub 2-2.5 m.; fruit rich red); trail from Kwang kei, alt. 3350 m., no. 13113, Aug. 1925 (shrub 2-3 m.; fruit red).

This species is endemic to Kansu. The specimens from Tebbu land have rather small stipules and small mostly ovate to elliptic leaves, that from Lower Tebbu country generally 3-5 cm., those from Upper Tebbu country 2-3.5 cm. long, and thus resemble the following species.

Prunus setulosa Batalin in Act. Hort. Petrop. xii. 165 (1892); in Gartenfl. XLII. 330 (1892).—Koehne in Sargent, Pl. Wilson. i. 257 (1912).

SOUTHWESTERN KANSU. Tao River basin; alt. 2600 m., no. 12263, June 1925 (shrub 1-1.5 m.; flowers purplish-red); outskirts of forests in river valley, alt. 2600-3000 m., no. 12298, June 1925 (shrub or small tree, 4.5 m.; flowers in pairs, pink); Minshan range, Kadjaku, beyond Tatsuto, alt. 2750 m., no. 12432, June 1925 (shrub or small tree 3-4.5 m.; flowers pink).

This species also is endemic to Kansu. The leaves resemble those of the small leaved *P. stipulacea* but the serrations are broader and less acuminate and the petioles are shorter; the bark of the older branchlets partly separates into large thin flakes.

Prunus pseudocerasus Lindley in Trans. Hort. Soc. Lond. vi. 90 (1826).—Wilson, Cherries Jap. 3 (1916).

Prunus paniculata Edwards in Bot. Reg. x. t. 800 (1824).—Non Thunberg.

SOUTHERN KANSU: mountain of Motzuping and Pikou along streams, no. 12072, April 1925 (tree or shrub 1–1.5 m.; flowers white).

Prunus spec.

WESTERN SZECHUAN: mountain of Ching chuan, alt. 1500 m., no. 12052, April 1925 (small tree 3 m.; flowers white).

This specimen resembles in the characters of its flowers and inflorescence *P. pseudocerasus*, but the involucre is caducous and the mature branchlets are slender, yellowish gray and more or less short-pilose; the very young unfolding leaves are densely pubescent on the veins and midrib beneath and on the petiole, but glabrous above. It may be related to *P. hirtifolia* Koehne of which the flowers are unknown, but branchlets and leaves of that species are more densely pubescent.

Prunus Padus Linnaeus, Spec. 473 (1753).—Maximowicz in Bull. Acad. Sci. St. Pétersb. xxix. 108 (1883); in Mém. Biol. xi. 705 (1883).—Beck in Reichenbach, Icon. Fl. Germ. xxv. 5, t. 95 (1913).

SOUTHWESTERN KANSU. Tao River basin: mountains of Choni, in forests and on banks of streams, alt. 3050 m., no. 12117, May 1925 (shrub 2–2.5 m.); banks of Tao River, east of Choni, alt. 2550 m., no. 12213, June 1925 (shrub or small tree; flowers white); southern bank, Choni, no. 12264, June 1925 (shrub 1.25–3 m.; flowers white); along bank of Tao ho, alt. 2550 m., no. 12306, June 1925 (tree 4.5–6 m.; flowers white, in showy racemes); Tatsuto forests along Kadjaku stream, alt. 2700 m., nos. 12452 and 12468, June 1925 (shrub 3 m. or less, or tree 7 m.; flowers white); Maerhku valley, alt. 2750 m., no. 13577, Sept.–Oct. 1925 (shrub 3–4.5 m.; fruit black); near Choni, no. 14893, Aug.–Sept. 1926 (shrub or small tree with drooping branches; fruit black).

The specimens above are apparently referable to var. *commutata* Dippel (Handb. Laubholzk. iii. 647 [1893]), differing from the type chiefly in the smaller leaves mostly broad-cuneate at base and light green beneath.

Prunus pubigera Koehne var. *Prattii* Koehne in Sargent, Pl. Wilson. i. 68 (1912).

SOUTHWESTERN KANSU. Lower Tebbu country: dense forests of Wantsang valley, alt. 2700 m., no. 14857, Sept. 12, 1926 (tree 7–10 m.; leaf gray beneath; fruit yellowish when mature); dense forest, with *Abies* at Totipana, Sambaku, alt. 2750–3000 m., no. 14883, Sept. 15, 1926 (tree 7–9 m., trunk reddish; leaf dull green above; fruit orange to brownish red).

Prinsepia uniflora Batalin in Act. Hort. Petrop. XII. 167 (1892); in Gartenfl. XLII. 331 (1892).—Rehder in Sargent, Pl. Wilson. I. 345 (1915).—F. N. Meyer in U. S. Dept. Agric. Bur. Pl. Indust. Invent Seeds Pl. Imp. XLI. 28, t. 3, 4 (1917).

SOUTHERN KANSU: valley of Motzuping, no. 12065, April 1925 (shrub 1–1.3 m.; flowers white to cream-colored).

SOUTHWESTERN KANSU: Lower Tebbu country: Pezhu valley, on loess slopes, no. 14957, Oct. 1926. Upper Tebbu country: banks of the Peshwekiang between Tsaraku and Pezhu, alt. 2450 m., no. 14564, Aug. 30, 1926 (shrub 1.75–2 m., with drooping branches; fruit single, wine-red).

CENTRAL KANSU. Lien ho a shan: below Lien ho a shan, along sandy banks of stream, alt. 2450 m., no. 13504, Oct. 1925 (spiny shrub, 1.75–2 m.; leaves pale green; fruit red juicy, edible); Tao River valley, below Titao, no. 13225, Aug. 1925 (spiny shrub, 1.25 m.; fruit scarlet, edible).

Prinsepia utilis Royle, Ill. Bot. Himal. 206, t. 38, fig. 1 (1839).—Hooker f., Fl. Brit. Ind. II. 323 (1879).—Rehder in Sargent, P. Wilson. II. 345 (1915).

NORTHEASTERN YUNNAN: near Laitoupu, dry rocky slopes, alt. 2550 m., no. 12004, Dec. 1924 (spiny shrub).

LEGUMINOSAE

Determined by CLARENCE E. KOBUSKI

Cercis chinensis Bunge in Mém. Div. Sav. Acad. Sci. St. Pétersb. II. 95 (Enum. Pl. Chin. Bor. 21) (1833); Planchon in Fl. des Serres, VIII. 269, t. 849 (1852–53).

WESTERN SZECHUAN: on road to Ching chuan, alt. 1525 m., no. 12041, Apr. 1925 (tree 6.5–9 m. tall; flowers white).

Indigofera Bungeana Walpers in Linnaea, XIII. 525 (1839).—Craib in Not. Bot. Gard. Edinb. VIII. 69 (1913).

SOUTHWESTERN KANSU. Lower Tebbu country: Mayaku above Nyipa, on shale slopes, alt. 2375 m., no. 15056, Sept.–Oct. 1926 (shrub 1 m. high).

Indigofera Bungeana Walp. f. *spinescens* Kobuski, forma nova.

A typo recedit habitu humili ad 0.3 m. alto, intricato-ramosissimo, ramis congestis brevibus spinescentibus, foliis 2.5–7 mm. longis et 2–3 mm. latis crassioribus subtus et ad marginem densius pubescentibus.

SOUTHWESTERN KANSU. Lower Tebbu country: on slate and shale embankments of Peshwekiang near Wantsang, alt. 1950 m., no. 14743, Sept. 5, 1926 (cushion plant, stiff low shrub; flowers pink).

This form, on account of its low growing, rather gnarled and spiny habit, would hardly on appearances be associated with the taller, more graceful shrub *I. Bungeana* Walp. However, the flower and fruit characters are practically identical with the typical form of the species and one must conclude on a study of the material that this specimen is probably only an ecological form.

Caragana brevifolia Komarov in Act. Hort. Petrop. xxix. 211, t. 17 (1909).

EASTERN TIBET. Kokonor Region: in rocky ravines of east Kokonor below Kettenika, alt. 3050 m., no. 13367, Sept. 1925 (shrub 1 m. high forming dense masses); grassy hillsides of Koko gorge near Bamba, northeast of Kokonor, alt. 2890–3050 m., nos. 13280 and 13343, Sept. 1925 (shrub 0.5–1.3 m. high, branches suberect; leaflets dark green; flowers yellow). Radja and Yellow River gorges: among rocks of Lungmar valley, southeast of Radja, alt. 3300 m., no. 14012, May 1926 (shrub 0.5–1 m. high; flowers dark yellow); along stream bed and outskirts of Spruce forest in Dachso canyon north of Radja, alt. 3200 m., no. 14075, June 2, 1926 (shrub 1 m. high). Jupar Range: open grassy slopes of valley north of range, alt. 3200 m., no. 14278, June 26, 1926 (shrub 1 m. high; flowers yellow).

SOUTHWESTERN KANSU. Tao River basin: Kadjaku valley, west Tebbu land, alt. 2800 m., no. 13562, Sept.–Oct. 1925 (shrub 1 m. high; flowers yellow); upper Chabaku valley in shade of Junipers, alt. 3050 m., no. 13192, Aug. 1925 (shrub with pendent branches).

Along with these numbers should be cited the Purdom specimen no. 1052, collected in Minchow, Western Kansu in 1910. This number was formerly cited in Jour. Arnold Arb. vii. 166 (1926) as *C. pygmaea* DC. var. *acicularis* Komarov.

Caragana frutex K. Koch, Dendrol. i. 48 (1869).—Koehne, Deutsch. Dendrol. 339 (1893).—Komarov in Act. Hort. Petrop. xxix. 224 (1909).

Caragana frutescens DC. Prodr. ii. 268 (1825).—Sweet, Brit. Fl. Garden iii. t. 227 (1827).

CENTRAL KANSU: along stream banks and beyond New City, en route to Lien hoa shan, alt. 2590 m., nos. 12759 and 13495A, July and Oct. 1925 (shrub 1.5–2.5 m. high; flowers yellow).

Caragana densa Komarov in Act. Hort. Petrop. xxix. 258, t. 7 (1909).

SOUTHWESTERN KANSU. Lower Tebbu country: in shade in mixed Mayaku forests along Mayaku stream, alt. 2590–2740 m., nos. 14760 and 15061, Sept.–Oct. 1926 (shrub 2–2.5 m. high, branches long, semi-erect, spines weak; flowers yellow); forests of Ngongo, no. 14973, Sept.–Oct. 1926 (shrub 1.5 m. high; flowers yellow). Tao River basin: Choni, alt. 2590 m., no. 12551, June 1925 (shrub 1.5–2 m. high; flowers yellow). Upper Tebbu country: among rocks, in Hsiaoku, northeast of Adjūan, east Tebbu country, alt. 3200 m., no. 13638, Sept.–Oct. 1925 (shrub 1.5 m. high; flowers yellow).

Caragana Maximovicziana Komarov in Act. Hort. Petrop. xxix. 269, t. 11, fig. B (1909).

SOUTHWESTERN KANSU. Upper Tebbu country: south of Minshan, along stream near Tongwa, no. 12507, June 1925 (armed shrub 0.5–1 m. high; flowers yellow). Tao River basin: river

valley among rocks, alt. 2590 m., no. 13538, Sept.-Oct. 1925 (shrub 1.5-2 m. high; flowers yellow); river banks near Choni, alt. 2530 m., no. 12205, June 1925 (shrub 1-1.5 m. high; flowers yellow).

EASTERN TIBET. Radja and Yellow River gorges: among boulders, alt. 3050 m., no. 13947, May 20, 1926 (shrub 1-1.5 m. high; flowers yellow).

Caragana Roborovskyi Komarov in Act. Hort. Petrop. xxix. 280, t. 8, fig. B (1909).

EASTERN TIBET. J u p a r Range: gravelly rocky bluffs overlooking Yellow river, west of mouth of Jupar Valley, alt. 3200 m., no. 14318, June 1926 (shrub .3-.7 m. high).

The specimen cited above lacks flowers but agrees with the original description of Komarov's species in all respects except for leaf length. The approximate leaf length is 5 mm. or one-half that given by Komarov. Incidentally the legumes, which were lacking in the Roborovsky specimen, are present in the Rock specimen. They are approximately 2.5 cm. long, quite attenuated at the apex and about as villous as the calyx.

Caragana tibetica Komarov in Act. Hort. Petrop. xxix. 282, t. 10 (1909).—Rehder in Jour. Arnold Arb. vii. 166, 1926.

EASTERN TIBET. J u p a r Range: gravelly rocky bluffs overlooking Yellow river, west of mouth of Jupar valley, alt. 3200 m., no. 14319, June 1926 (tussock forming plant; flowers yellow).

An excellent photograph of this specimen showing its low growing habit accompanied the collection.

Caragana jubata Poiret, Encycl. Méth. Suppl. ii. 89 (1911).—Regel in Gartenfl. x. 231, t. 331 (1861).—Komarov in Act. Hort. Petrop. xxix. 287 (1909).

SOUTHEASTERN KANSU. T a o River basin: Drakana in Kwang kei, alt. 3050 m., no. 13567, Sept.-Oct. 1925 (single, woody, erect stem, 3-4.5 m. high; flowers large, rich pink); Darakana, Tebbu country, alt. 3300 m., no. 13541, Oct. 1925 (thick-stemmed, spiny shrub 1 m. high, spreading; flowers pink); alpine meadows, west of Adjüan, alt. 3650 m., no. 12635, July 6-10, 1925 (shrub 1 m. high); Taku mountains, west of Adjüan, east Tebbu land, alt. 3300 m., no. 13533, Oct. 1925 (spiny spreading shrub; flowers pink); with *Abies* at head of Laliku, alt. 3050-3300 m., no. 14933, Oct. 19, 1926 (unbranched shrub, 1.3-2 m. high; flowers pink); grassy slopes of Minshan range, Kadjaku, no. 12425, June 1925 (woody plant 3-3.5 m. high, forming long cylindrically shaped trees without lateral branches). U p p e r Tebbu c o u n t r y: southern slopes of Minshan (only), alt. 3230 m., no. 12517, June 1925 (spreading rambling shrub; flowers purplish red).

EASTERN TIBET. K o k o n o r Region: grassy hillsides of Koko gorge near Bamba, northeast of Kokonor, alt. 2890-3020 m., no. 13342, Sept. 1925 (stiff, stout, spreading stems). R a d j a and Y e l l o w

River gorges: grassy slopes of Lungmar pass, southeast of Radja, alt. 3650 m., no. 14013, May 1926 (prostrate shrub; flowers pink); alpine meadows between upper Dachso valley and mouth of Wajo valley, alt. 4100 m., no. 14090, June 4, 1926 (prostrate shrub; flowers pink).
Jupar Range: rocky slopes and cliffs of schist in upper Jupar valley, alt. 3650 m., no. 14341, June 1926 (stem up to 3 m. high; flowers pink).
Amnyi Machen range (west of Yellow River): alpine meadows of Druggu, alt. 4250 m., no. 14427, July 1926 (prostrate shrub; flowers pale pink).

Excellent photographs of nos. 12425, 12635, 14341 and 14933 were sent along with the collection and show both habit and parts of the plants in greater detail. The prostrate form of *C. jubata* of the grassy alpine slopes is perhaps represented by nos. 14013, 14090 and 14427. These numbers also possess smaller leaves. The remaining numbers represent the erect, robust habit of growth usually associated with this species. A more glabrescent form is represented by numbers 13342 and 13533. In these last mentioned numbers, however, the specimens are already in fruit and may not represent any unusual feature.

Caragana sp.

SOUTHWESTERN KANSU. Lower Tebbu country: along stream in upper Mayaku forests, alt. 2740 m., nos. 14765 and 15062, Sept.-Oct. 1926 (shrub 1-2.5 m. high, branched); on rocks and shady banks upper forests of Wantsang, alt. 2560 m., no. 14698, Sept. 3, 1926 (shrub 2-3 m. high; flowers yellow); gorges of Ngongo, alt. 2890 m., no. 14965, Oct. 1926 (shrub 1.5-2.5 m. high, tortuously branched).

These flowerless specimens represent either the species *C. conferta* Benth. or a species closely related. Since the flowers are lacking and there seems to be no outstanding and distinctive characters present one hardly feels justified in describing it as new.

Astragalus sp.

EASTERN TIBET. Kokonor Region: sandy desert surrounding northeastern shore of Kokonor, alt. 3200 m., no. 13382, Sept. 1925 (shrub less than 0.3 m. high, spiny, globose).

On account of the absence of both inflorescence and fruit it is quite impossible to determine the above number any further than to genus.

Hedysarum multijugum Maximowicz in Mém. Biol. xi. 212 (1881); in Bull. Acad. Sci. St. Pétersb. xxvii. 464 (1882).—Regel in Gartenfl. xxxii. 193, t. 1122 (1883).

CENTRAL KANSU. Lien ho a shan: loessy bank of Tao river below Titao, also Yellow river and Hsinging river valley, alt. 1830 m., no. 13226, Aug. 1926 (flowers rich carmine, turning purple on drying).

Lespedeza formosa Koehne, Deutsch. Dendrol. 343 (1893).—Schindler in Bot. Jahrb. xlix. 580 (1913); in Sargent, Pl. Wilson. ii. 107 (1914).

SOUTHWESTERN KANSU. Lower Tebbu country: on dry slate and shale slopes of Mayaku along trail in Oak forest, alt. 2375 m., no. 14792, Sept. 8, 1926 (about 1 m. high; flowers purple).

Lespedeza floribunda Bunge in Mém. Kazan. Univ. iv. [114?] (Pl. Mongh.-Chin. 13) (1835); Schindler in Bot. Jahrb. XLIX. 597 (1919); in Sargent, Pl. Wilson. II. 105 (1914); in Bot. Centralbl. Beih. XXXVII. pt. II. 142 (1919).

SOUTHWESTERN KANSU. Lower Tebbu country: on dry arid shale slopes of Peshwekiang below Wantsang, no. 14744, Sept. 5, 1926 (flowers deep lavender purple).

Campylotropis Giraldui Schindler in Fedde, Rep. Spec. Nov. ix. 518 (1911); XI. 340 (1912).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang, alt. 2135 m., no. 14732, Sept. 1926 (shrub 2-2.5 m. high; flowers rich pink); banks of stream and outskirts of forests, alt. 2135 m., no. 14652, Aug. 31, 1926 (shrub 3-4 m. high; flowers pinkish purple).

ZYGOPHYLLACEAE

Determined by A. REHDER

Zygophyllum xanthoxylum Maximowicz, Fl. Tangut. 103 (1889).—Engler in Engler & Prantl, Nat. Pflanzenfam. abt. 3, IV. 81 (1890).

Sarcozygium xanthoxylum Bunge in Linnaea, XVII. 8, t. 1 (1843).

CENTRAL KANSU. Yellow River basin: between Taosha and Lanchow, alt. 1825 m., no. 13238, Aug. 1925 (shrub 1 m.; leaves fleshy; fruit papery, yellow).

NORTHWESTERN KANSU. Richthofen Range and adjacent region: arid gorge of Liyüanku, no. 13320 a, Nov. 1925 (fruit 3-winged, white).

No. 13320 a consists of fruit only; the branches under no. 13320 belong to the following species.

Nitraria Schoberi Linnaeus, Spec. ed. 2, 638 (1762).—Maximowicz, Fl. Tangut. 102 (1889).—Engler in Engler & Prantl, Nat. Pflanzenfam. abt. 3, IV. 91, fig. 59 A-G (1890).

CENTRAL KANSU. Yellow River basin: loess canyons and ravines beyond Taosha, alt. 1725 m., no. 13240, August 1925 (shrub with pendent spiny branches, globose in outline; fruit transparent, scarlet); between Taosha and Lanchow, alt. 1825 m., no. 13237, August 1925 (spiny shrub 0.75-1 m., branches whitish; flowers whitish).

NORTHWESTERN KANSU. Richthofen Range and adjacent region: arid gorge of Liyüanku, no. 13320, Nov. 1925 (shrub 1 m., pale, spiny).

EASTERN TIBET. Ba valley: in dry arid loess region in lower Ba valley, alt. 2850 m., no. 14355, July 1926 (spiny shrub, prostrate or 1-1.25 m. high; flowers white).

RUTACEAE

Determined by A. Rehder

Zanthoxylum setosum Hemsley in Jour. Linn. Soc. XXIII. 107 (1886).—Rehder & Wilson in Sargent, Pl. Wilson. II. 124 (1914).

SOUTHWESTERN KANSU. Lower Tebbu country: outskirts of forests of Wantsang valley, alt. 2125–2250 m., nos. 14661 and 14827, Aug. 31 and Sept. 1926 (shrub with stiff spreading branches or tree to 4.5 m.; fruit bright red, seeds shining black).

The specimens cited above differ from typical *Z. setosum* in the less copious pubescence; in both specimens the leaflets number 5–7 and are glabrous, but the petioles and the rachis of the leaf, the inflorescence and the branchlets are short-pilose, more minutely so and with the rachis of the leaf glabrescent in no. 14827. The related *Z. simulans* Hance (*Z. Bungei* Planch.) differs chiefly in its glabrousness, in the 7–11 larger leaflets and *Z. Piasezkii* Maxim in the 7–15 much smaller leaflets and in its glabrousness.

SIMAROUBACEAE

Determined by A. REHDER

Ailanthus altissima (Mill.) Swingle in Jour. Wash. Acad. Sci. VI. 495 (1916).

Ailanthus glandulosa Desfontaines in Mém. Acad. Sci. Paris, 1786, 265, t. 8.—L'Héritier, Stirp. Nov. 179, t. 84 (1791).

SOUTHWESTERN KANSU. Lower Tebbu country: slopes of gorges of Peshwekiang, alt. 1900 m., no. 14691, Sept. 1, 1926 (tree 7 m.; leaf glossy dark green above, pale beneath; fruit red at maturity); slopes of upper Nyibaku, alt. 2300 m., no. 14748 (tree 7–10 m.); slopes of Mayaku and Nyibaku, central spur, alt. 2450 m., no. 15060, Sept.–Oct. 1926 (tree 4.5–6 m.; panicle 30 cm. long).

CENTRAL KANSU. Yellow River basin: hilly loess country west of Lanchow near Hsincheng, no. 13243, Aug. 1925 (tree 7–12 m.; trunk 30–60 cm. diam., bark brown-gray, longitudinally furrowed).

ANACARDIACEAE

Determined by A. REHDER

Pistacia chinensis Bunge in Mém. Div. Sav. Acad. Sci. St. Pétersb. II. 89 (Enum. Pl. Chin. Bor. 15) (1833).—Rehder & Wilson in Sargent, Pl. Wilson. II. 173 (1914).—Chun, Chinese Econ. Trees, 216, fig. 78 (1922).

SOUTHWESTERN KANSU. Lower Tebbu country: dry arid banks of Peshwekiang, alt. 2000 m., no. 14798, Sept. 9, 1926 (tree 7–10 m.; leaf dark green above, pale beneath; fruit red, in large clusters).

AQUIFOLIACEAE

Determined by A. REHDER

Ilex malabarica Beddome, Fl. Sylv. i. t. 143 (1869).—Hooker f., Fl. Brit. Ind. i. 600 (1875).—Loesener in Nov. Act. Leop.-Carol. Acad. LXXVIII. 235 (Monog. Aquifol.) (1901).

NORTHEASTERN YUNNAN: Laitoupu, mountainous slopes, alt. 2450 m., no. 12003, Dec. 1924 (tree 6 m. with round bushy crown; leaves glossy dark green; berries crimson).

The specimen agrees with the figure given by Beddome and with Loesener's description, but the fruits are in fascicles of 2-5, not solitary; in this respect it agrees with Henry's 12595a which is apparently identical with Henry's 12595, the type number of Loesener's var. *sinica* (in Nov. Act. Leop.-Carol. Acad. LXXXIX. no. 1, p. 281 [Monog. Aquifol. II] [1908]), which has often 2 to 3 flowers in one fascicle on the branchlets of the previous season. It differs, however, from var. *sinica* in the leaves having the petiole and the midrib beneath glabrous; the petioles are 5-10 mm. long.

CELASTRACEAE

Determined by A. REHDER

Evonymus alata Reg. var. *aperta* Loesener in Sargent, Pl. Wilson. i. 494 (1913).—Rehder in Jour. Arnold Arb. VII. 202 (1926).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Ngongo, alt. 2750 m., no. 14978, Sept.-Oct. 1926 (shrub 1.75-2 m., branches round; seed black, aril orange). Upper Tebbu country: southern slopes of Minshan, along bank of mountain stream, alt. 3250 m., no. 12498, June 1925 (shrub with long rambling branches; flowers reddish brown).

I have referred the flowering specimen to this variety as it is not known that any other form of *E. alata* occurs in Kansu.

Evonymus phellomana Loesener in Bot. Jahrb. XXIX. 444, t. 5, fig. D, E (1900); XXX. 463 (1902).—Rehder in Jour. Arnold Arb. VII. 203 (1926).

SOUTHWESTERN KANSU. Tao River basin: valley of Tayüku, alt. 2600 m., no. 12626, July 6-10, 1925 (flowers greenish white); banks of Tayüku, southeast of Choni, alt. 2600 m., no. 12822, July 1925 (shrub 1.75-2.5 m., stem quadrangular; flowers greenish white); Maerhku, Choni district, alt. 2750 m., no. 13508, Oct. 1925 (weak shrub, 2-2.5 m., branches quadrangular, winged; fruit pink, seeds red); Tayüku, east Tebbu country, alt. 2900 m., no. 13521, Oct. 1925 (branches winged; fruit red, seeds black). Lower Tebbu country: exposed slopes, with Cotoneaster, Pyrus, etc., in Tayüku valley, eastern Minshan, alt. 2750 m., no. 14872, Sept. 19, 1926 (shrub 3-4.5 m.; leaf dull pale green); Mayaku and Nyiba ku divide, alt. 2450 m., no. 15072, Sept.-Oct. 1926 (seeds pale red).

Evonymus nanoides Loesener & Rehder in Sargent, Pl. Wilson. i. 492 (1913).—Rehder in Jour. Arnold Arb. VI. 203 (1926).

SOUTHWESTERN KANSU. Tao River basin: west of Choni, open scrub, alt. 2700 m., no. 12174, June 1925 (shrub 0.6-1 m.; flowers

green); Choni district, alt. 2600 m., no. 13554, Sept.-Oct. 1925 (shrub 0.6-1 m.; fruit capsular, aril red). Lower Tebbu country: slate banks and slopes of Mayaku beyond pass, on ridge between Nyiba and Maya, no. 14749, Sept. 5, 1926 (a prostrate stiff shrub; fruit yellow and red); Pezhu valley, alt. 2750 m., no. 14955 (shrub 0.6 m., stems angular, branches short; fruit globose, red, seeds single).

CENTRAL KANSU. En route to Lien hoa shan: from Choni via Tao chow, on grassy slopes and among scrub, alt. 2750 m., no. 12670, July 1925 (shrub 1-1.25 m.; fruit red).

Evonymus Przewalskii Maximowicz in Mém. Biol. xi. 194 (1881); in Bull. Acad. Sci. St. Pétersb. xxix. 451 (1882); Fl. Tangut. 108 (1889).—Loesener in Bot. Jahrb. xxx. 464 (1902).

SOUTHWESTERN KANSU. Tao River basin: forests of Shiaoku beyond Adjüan, alt. 3050 m., no. 12820, July 1925 (scandent shrub 1.75-2.5 m. with quadrangular branches; flowers dark reddish black); Tayüka, east Tebbu land, Tsarekika, alt. 3200 m., no. 13587, Sept.-Oct. 1925 (shrub 0.6-1 m.; fruit greenish yellow, aril yellow).

NORTHWESTERN KANSU. Richthofen range and adjacent region: among scrub of Willows, Berberis and Potentilla, Kommangssu, alt. 2900 m., no. 13311, Oct. 1925 (shrub 1-1.25 m.; fruit pinkish red).

Evonymus Giraldii Loes. var. *ciliata* Loesener in Bot. Jahrb. xxix. 443 (1900); xxx. 465 (1902).

SOUTHWESTERN KANSU. Tao River basin: between Yaruku, Yarugomba and Lupassu, steep forested southern banks, alt. 2750 m., no. 13173, Aug. 1925 (shrub 2.5 m.); Tatsuto to Kadjaku, Picea forest, alt. 2900 m., no. 13569, Sept.-Oct. 1905 (shrub 1-1.25 m.; fruit red, aril red). Lower Tebbu country: mixed forest along Mayaku stream in shade, alt. 2750 m., no. 14759, Sept. 6, 1926 (shrub 1-1.5 m., with erect slender straggling branches); forests of Wantsang valley, alt. 2600 m., no. 14843, Sept. 12, 1926 (shrub 2-3 m., with slender drooping branches; seeds black, enclosed in red aril).

The specimens cited above I have referred on account of the decidedly ciliate leaves to var. *ciliata* Loes., but the leaves are mostly elliptic-lanceolate or ovate-lanceolate, narrower than described by Loesener. The fruits agree with those of the following variety.

Evonymus Giraldii var. *angustialata* Loesener in Bot. Jahrb. xxxvi. beibl. lxxxii. 72 (1905).

SOUTHWESTERN KANSU. Tao River basin: Maerhku valley, among Willow scrub and Berberis, no. 12961, July 25, 1925 (shrub 1-1.25 m.). Lower Tebbu country: outskirts of forests, Wantsang valley, alt. 2300 m., no. 14695, Sept. 3, 1926 (shrub 1.75-2 m.; eaf pale green; fruit greenish pink, red at maturity).

CENTRAL KANSU. Lien hoa shan: with Spruces at 3050 m., alt., no. 12747, July 14-20, 1925 (tree 2.5-3 m.).

ACERACEAE

Determined by A. REHDER

Acer pictum Thunb. var. *parviflorum* Schneider, Ill. Handb. Laubholz. II. 225 (1907).—Nakai, Fl. Sylv. Kor. I. 18, t. 12 (1915).—Rehder in Jour. Arnold Arb. VII. 216 (1926).—Chun, Chin. Econ. Trees, 227, fig. 82 (1922).

Acer pictum var. *Mono* Franchet in Nouv. Arch. Mus. Paris sér. 2, v. 229 (Pl. David. I. 77) (1883).—Engler, Pflanzenr. IV.-163, p. 47 (1902).—Rehder in Sargent, Trees & Shrubs I. 177 (1905).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang, alt. 2200 m., no. 14666, Aug. 31, 1926 (tree 7-12 m.; petioles red; fruit erect on the pedicels); Tsao hi forests, alt. 2300 m., no. 14738, Sept. 2, 1926 (tree 12-15 m.; leaf pale beneath; fruit on erect peduncle); Tsaoshiku forests, alt. 2750 m., no. 15000, Sept.-Oct. 1926 (tree 12-15 m.; trunk over 60 cm. diam.); forests of Tsaoshiku, alt. 2600 m., no. 15098, Sept. 1926 (tree 15-18 m.; fruit in short raceme).

Acer ginnala Maximowicz in Bull. Phys.-Math. Acad. Sci. St. Pétersb. xv. 126 (1857); in Mém. Biol. II. 415 (1857).—Pax in Engler, Pflanzenr. IV.-163, p. 12 (1902).—Rehder in Sargent, Trees & Shrubs, I. 179 (1905); in Jour. Arnold Arb. VII. 220 (1926).—Nakai, Fl. Sylv. Kor. I. 8, t. 2 (1915).

CENTRAL KANSU. Lien hoa shan: along banks of Ha kou stream, alt. 2750 m., no. 12783, July 1925 (tree 12-15 m., trunk 90 cm. diam.; leaf dark glossy green above, paler beneath).

Acer caudatum Wall. var. *multiserratum* Rehder in Sargent, Trees & Shrubs, I. 163, t. 82, fig. 11 (1905).

Acer erosum Pax in Hooker's Icon. XIX, sub tab. 1897 (Oct. 1889).—in Engler, Pflanzenr. IV.-163, p. 69 (1902).

Acer multiserratum Maximowicz in Act. Hort. Petrop. XI. 107 (Nov. 1889).—Pax in Engler, Pflanzenr. IV.-163, p. 21 (1902).

Acer ukurunduense var. *multiserratum* Schneider, Ill. Handb. Laubholz. II. 199, fig. 131 d (1907).

SOUTHWESTERN KANSU. Tao River basin: slopes of Maerhku valley, alt. 3050 m., no. 12957, July 25, 1925 (tree 4.5-6 m.; trunk 30 cm. diam.; petioles red; flowers [young fruits] pale lavender pink); Maerhku valley, Minshan range, alt. 2750 m., no. 13607, Sept.-Oct. 1925 (tree 7-9 m.). Lower Tebbu country: upper forest of Wantsang, with *Picea* and red Birches, alt. 2425 m., no. 14702, Sept. 3, 1926 (tree 15-18 m.; trunk 30-60 cm. diam.; petiole red; fruit in drooping racemes); dense forests of Wantsang, banks of stream, alt. 2400 m., no. 14727, Sept. 3, 1926 (tree 12-15 m.; trunk 60 cm. diam.; fruit pale green); dense *Abies* forest en route to Dayaya limestone canyon, alt. 3050 m., no. 14785, Sept. 8, 1926 (tree 10 m.; petioles red; fruit on erect racemes);

forest of Wantsang ku, alt. 2750 m., no. 15010, Sept.-Oct. 1926 (tree 15-18 m.; leaf brilliant carmine, racemes 15 cm. long, densely packed with small fruits); forests of Wantsang, alt. 2600-2750 m., no. 15040, Sept.-Oct. 1926 (tree 13-15 m.; trunk 60 cm. diam.).

Acer Davidi Franchet in Nouv. Arch. Mus. Paris, sér. 2, viii. 212 (Pl. David. II. 30) (1884).—Rehder in Sargent, Trees & Shrubs, I. 167, t. 83 (1905).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang ku, alt. 2125-2450 m., nos. 14660 and 15033, Aug. 31 and Sept.-Oct. 1926 (tree 7.5-9 m.; fruit pale green, finally straw colored).

Acer Grosseri Pax in Engler, Pflanzenr. iv.-162, p. 80 (1902).—Rehder in Sargent, Trees & Shrubs, I. 181 (1905); in Jour. Arnold Arb. VII. 222 (1926).

SOUTHWESTERN KANSU. Lower Tebbu country: Mayaku, near Zhega, alt. 2300-2550 m., no. 15053, Sept.-Oct. 1926 (tree 7.5-10.5 m.).

Possibly this species is only a form of *A. Davidi* Franch. with which it seems connected by intermediate forms.

Acer Maximowiczii Pax in Hooker's Icon. XIX. sub t. 1897 (Oct. 1889); in Engler, Pflanzenr. iv.-163, p. 70 (1902).

Acer urophyllum Maximowicz in Act. Hort. Petrop. XI. 105 (Nov. 1889).—Rehder in Sargent, Trees & Shrubs I. 169, t. 84 (1905).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang, alt. 2300-2600 m., nos. 14682, 14703, 14706 and 14730, Sept. 1 and 3, 1926 (tree 7-12 m., trunk 30 cm. diam., with drooping branches (no. 14703); leaves dark green above, pale beneath, petioles red; fruit in drooping racemes pale green to pink); Tsaoshi ku, alt. 2225 m., no. 14735, Sept. 2, 1926 (tree 7-9 m.; leaves dark green; fruit pale green); dense Abies forest en route to Dayaya, limestone canyon, alt. 3050 m., no. 14784, Sept. 8, 1926 (tree 6 m., with long descending branches; leaf petiole and fruit pale green); in mixed forests below Abies on slopes back of Wantsang ssu, alt. 2750 m., no. 14814, Sept. 1926 (tree 7-9 m.); dense forests of Wantsang valley, alt. 2600 m., no. 14855, Sept. 12, 1926 (tree 13-15 m., trunk 30-60 cm. diam.); Pezhu valley, alt. 2750 m., no. 14946, Oct. 1926 (tree 12 m.; trunk 60 cm. diam.); forests of Tsaoshiku, alt. 2600 m., no. 14998, Sept.-Oct. 1926 (tree 10-12 m.; trunk 30 cm. diam.); Wantsang forests, alt. 2600-2750 m., no. 15031, Sept.-Oct. 1926 (tree 7-9 m.); forests of Wantsang ku, alt. 2750 m., no. 15041, Sept.-Oct. 1926 (tree 7-9 m.); mountain of Wantsang, valley of Chulungapu, alt. 2750 m., no. 15047, Sept.-Oct. 1926 (tree 6-7 m.).

CENTRAL KANSU. Lien ho a shan: in forests of Shanshen Miao, no. 13488, Oct. 1925 (shrub or tree 4.5-6 m.; fruits in drooping racemes).

Acer tetramerum Pax var. *betulifolium* Rehder in Sargent, Pl. Wilson. I. 95 (1911).

Acer betulifolium Maximowicz in Act. Hort. Petrop. ix. 108 (1889).

SOUTHWESTERN KANSU. Tao River basin: in *Picea* forests, beyond Kadjaku near Lupassu, alt. 2750 m., no. 13166, Aug. 1925 (tree 4.5 m.; petioles and stems red); Tatsuto to Kadjaku, *Picea* forests, alt. 2750 m., no. 13542, Sept.-Oct. 1925 (tree 4.5 m.; fruits red). Lower Tebbu country: along Wantsang stream, dense forests, alt. 2125-2200 m., no. 14656, August 31, 1926 (tree 7 m.; stems and petioles red; leaf dull above, glossy beneath; fruit pink); forests of Wantsang, alt. 2125-2200 m., no. 14665, Aug. 31, 1926 (tree 4.5-6 m.; leaf dark green; stem red; fruit pinkish); Lower Wantsang valley, alt. 2125 m., no. 14830, Sept. 1926 (tree 12 m.; fruit pink); Pezhu valley, alt. 2900 m., no. 14949, Oct. 1926 (tree 9 m., trunk 30 cm. diam.; fruit in racemes); forests of Ngongo to Pezhu, alt. 2750 m., no. 14984, Sept.-Oct. 1926 (tree 11 m.); valley of Tsaoshiku, alt. 2750 m., no. 14997, Sept.-Oct. 1926 (tree 11 m.; trunk 30 cm. diam.; fruit in drooping racemes); forests of Wantsang, alt. 2450, no. 15032, Sept.-Oct. 1926 (tree 9 m.; fruit in drooping racemes); Mayaku near Zhaga, alt. 2600 m., no. 15051, Sept.-Oct. 1926 (tree 3-4.5 m.).

CENTRAL KANSU. Lien ho a shan: Shanshen Miao, alt. 2900 m., no. 13489, Oct. 1925 (small tree or shrub 3 m.; fruit in drooping racemes).

SAPINDACEAE

Determined by A. REHDER

Koelreuteria paniculata Laxmann in Nov. Comm. Acad. Sci. Petrop. xvi. 561 (1772).—Ker in Bot. Reg. iv. t. 330 (1818).

SOUTHWESTERN KANSU. Lower Tebbu country: gravelly slopes of Peshwekiang gorge, alt. 2100 m., no. 14553, Aug. 30, 1926 (tree 4.5-5.5 m. with spreading branches; the bladder-like fruit greenish red); dry slopes of Nyibaku, largest tree observed, alt. 2300 m., no. 14796, Sept. 9, 1926 (tree 12 m., trunk 30-60 cm. diam., bark longitudinally furrowed, dark brownish black); drier region, banks of Chulungapu, tallest trees at Nyiba, no. 14994, Sept.-Oct. 1926 (tree 12 m.; trunk 60 cm. diam., bark brownish black, deeply longitudinally furrowed).

SABIACEAE

Determined by A. REHDER

Sabia Ritchieae Rehder & Wilson in Sargent, Pl. Wilson. II. 195 (1916).

SOUTHERN KANSU: between Kaichow and Minchow, along river bank of Wutu ho, no. 12074, April 1925 (straggling shrub 1-1.5 m.; flowers purplish).

Meliosma cuneifolia Franchet in Nouv. Arch. Mus. Paris, sér. 2, viii. 211 (Pl. David. II. 29) (1886).—Hutchinson in Bot. Mag. cxxxvii. t. 8357 (1911).

SOUTHWESTERN KANSU. Lower Tebbu country: dense forests of Wantsang, alt. 2125-2200 m., no. 14667, Aug. 31, 1926 (tree 6 m.; with ascending branches; leaf dark dull green above, paler and glossy beneath).

RHAMNACEAE

Determined by A. REHDER

Berchemia pycnantha Schneider in Sargent, Pl. Wilson. II. 215 (1914).

SOUTHEASTERN KANSU. Lower Tebbu country: lower part of Wantsang valley, in forests, alt. 2125 m., no. 14711, Sept. 3, 1926 (shrub 2.5-3 m.).

This species has not yet been recorded from Kansu.

Sageretia theezans Brongniart in Ann. Sci. Nat. x. 360 (Mém. Fam. Rhamn. 53) (1826).—Maximowicz in Mém. Acad. Sci. St. Pétersb. sér. 7, IV. no. XI. 20 (Rhamn. As. Or.) (1866).—Nakai, Fl. Sylv. Kor. IX. 35, t. 15a (1920).

SOUTHWESTERN KANSU. Lower Tebbu country: in groves of Junipers and Oaks at Pezhu and on banks of Peshwekiang, alt. 2170 m., no. 14560, Aug. 30, 1926 (shrub 3 m., with long whip-like drooping branches); arid slopes in limestone gorge, Peshwekiang, no. 14688, Sept. 1, 1926 (shrub with stiff spreading branches; leaf glossy; flowers cream-color); Pezhu, bank of Chulungapu, alt. 2200 m., no. 14958, Oct. 1926 (shrub 3-4.5 m., with rambling branches; fruit globose, black).

Rhamnus leptophylla Schneider in Notizbl. Bot. Gart. Berlin, 1908, p. 77; Ill. Handb. Laubholzk. II. 285, fig. 196v-w, 198e-h (1909); in Sargent, Pl. Wilson. II. 239 (1914).

SOUTHWESTERN KANSU. Tao River basin: northwest of Choni, in scrub forest, alt. 2600 m., no. 12167, June, 1925 (shrub 2-3 m., with stiff gnarled branches); west of Choni between Tatsuto and Lupassu, alt. 2625 m., no. 12445, June 1925 (shrub 2-3 m., with stiff gnarled branches; flowers green). Lower Tebbu country: forests of Wantsang, no. 14712, Sept. 3, 1926 (shrub 2-2.5 m., with spreading branches; mature fruit purplish black); arid slopes of Mayaku, alt. 2300 m., no. 14795, Sept. 9, 1926 (spiny tree 4.5-5.5 m., with long erect stiff branches; ripe fruit black); Mayaku north of Chulungapu valley, alt. 2600 m., no. 15050, Sept.-Oct. 1926 (shrub 2.5-3 m., spiny; fruit black, single or in threes). Upper Tebbu country: undergrowth in Oak and Juniper forests at Pezhu, alt. 2150 m., no. 14581, Aug. 28, 1926 (stiff shrub with horizontal branches; fruit globose, black).

Numbers 14581, 14712 and 14795 have the leaves slightly pubescent above and thus form a transition to the following variety. This species is apparently one of the most common species in China and very variable in the shape of its leaves. It had been collected before in Kansu by R. C. Ching (Wulsin, Exped. nos. 845, 829, and 1031).

Rhamnus leptophylla var. **scabrella** Rehder, var. nov.

A typo recedit foliis minoribus obovatis vel ellipticis supra scabridopilosiusculis subtus praecipue ad costam et petiolos satis dense breviter pilosis.—Frutex spinosus 1.5–3 m. altus, ramulis junioribus brevissime pilosulis, foliis 2–3, rarius 4 cm. longis.

SOUTHWESTERN KANSU. Tao River basin: northwest of Choni, alt. 2600, no. 12168, June 1925 (shrub 2–3 m.; type); in Picea forest beyond Kadjaku near Lupassu, alt. 2750 m., no. 13170, Aug. 1925 (shrub 2–2.5 m.; fruit [immature] red when mature); Poyuku, no. 13608, Sept.–Oct. 1925 (spiny shrub 0.5–2 m.; fruit black).

EASTERN TIBET. Kokonor region: along banks at foot of Loyni, near Sin cheng, no. 13297, Oct. 1925 (shrub 0.75–2.5 m.; fruit globose, black).

Here belong also the following specimens: **KANSU:** Ti Taon sse, near Pingfang, alt. 2350–3250 m., *R. C. Ching*, Wulsin Exped. no. 559, July 20, 1923.—**HUPEH:** north and south of Ichang, alt. 300–1200 m., *E. H. Wilson*, no. 421, June 5, 1907; (bush 0.5–2 m.; flowers yellowish); Fang Hsien, alt. 1800–2100 m., *E. H. Wilson*, no. 618, Nov. 1907; western Hupeh, alt. 2100 m., *W. Y. Chun*, no. 4190, Sept. 3, 1922.—**HONAN:** Sunghsien, San kuan miao, alt. 1200 m., *J. Hers*, no. 510, May 24, 1919.—**CHEKIANG:** Tihtai shan, Tihtai, alt. 200 m., *R. C. Ching*, no. 1358, May 4, 1924 (shrub 2.5 m.; flowers greenish).—**HUNAN:** in monte Yün shan, prope urbem Wukang, alt. 850–1300 m., *H. Handel-Mazzetti*, no. 12042, June 6, 1918 (shrub 1.5 m.).

This variety differs from the typical form chiefly in the somewhat scabrid short pilose pubescence of the upper side of the leaves and in the short minute pilose pubescence of the midrib beneath and of the petioles. The var. *milensis* Schneid. which is also pubescent differs chiefly in the larger leaves scarcely scabrid above, in the slenderer elongated branches and the tree-like habit. The somewhat similar *R. rugulosa* Hemsl. is readily distinguished by the deeply impressed veins above and the dense and soft pubescence of the under side of the leaves.

VITACEAE

Determined by A. REHDER

Ampelopsis aconitifolia Bge. var. **palmiloba** Rehder in Mitt. Deutsch. Dendr. Ges. XXI. 190 (1912); Man. Cult. Trees Shrubs 608 (1927).

Ampelopsis palmiloba Carrière in Rev. Hort. 1867, p. 451, fig. 40.

Ampelopsis aconitifolia var. *typica* Koehne, Deutsch. Dendr. 400 (1893).

CENTRAL KANSU. Yellow River basin: rocky gorge of Hsining river beyond Hsiang tang, alt. 2450 m., no. 13244, Aug. 1925 (woody climber; fruit red).

None of the leaves of this number are undivided; many are 5-parted and occasionally the middle leaflet has the sinus of one or both of the lower lobes extending to the midrib but mostly the leaflets are more or less rhombic in outline and only coarsely toothed or lobulate; the primary and secondary veins beneath are rather densely hirsute with some scattered hairs on the veinlets.

TILIACEAE

Determined by A. REHDER

Tilia chinensis Maximowicz in Act. Hort. Petrop. xi. 83 (1890).*Tilia Baroniana* Diels in Bot. Jahrb. xxix. 468 (1900).—V. Engler, Monog. *Tilia*, 132 (1909).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang, alt. 2125–2200 m., no. 14657, Aug. 31, 1926 (tree 12 m.; leaf dull green above, paler beneath); forests of Wantsang, alt. 2450 m., no. 14720, Sept. 3, 1926 (tree 12 m.; trunk grayish green; leaf dull green papery); Wantsang forests, alt. 2750 m., no. 15034, Sept.–Oct. 1926 (tree 10–12 m.); Wantsang ku, alt. 2750 m., no. 15042, Sept.–Oct. 1926 (tree 9–12 m.); grassy slopes and in dense forest of Wantsang valley, alt. 2600 m., no. 14821, Sept. 11, 1926 (tree 10–12 m.); forests of Tsaoshi, alt. 2300 m., no. 14737, Sept. 2, 1926 (tree 12 m.); forest of Tsaoshi ku, alt. 2600–2750 m., nos. 14999 and 15001, Sept.–Oct. 1926 (tree 12–15 m.); Mayaku, alt. 2600–2750 m., nos. 15052 and 15069, Sept.–Oct. 1926; mixed forests of upper Mayaku, alt. 2750 m., no. 14763, Sept. 5, 1926 (tree 7–9 m.; branches drooping; leaf dark green, petioles red).

CENTRAL KANSU. Lien ho a shan: alt. 2900 m., no. 13217, Aug. 1925 (tree 7 m.; leaf gray beneath, dull); northern slopes of Shan-shen Miao, alt. 2750–2850 m., nos. 13484 and 13486, Oct. 1925 (tree 6–10 m.; leaves pale beneath).

The pubescence on the under side of the leaves shows some variation; in most specimens the stellate tomentum is very thin and loose; in some specimens as in nos. 13217, 14657 and 14763 the leaves have the tendency to become glabrescent, while in nos. 14821 and 15042 the tomentum is fairly dense but yet easily detachable.

MALVACEAE

Determined by A. REHDER

Abutilon sinense Oliver in Hooker's Icon. xviii. t. 1750 (1888).

WESTERN SZECHUAN: south of Takwan, cliffs of Takwan River gorge, on rocky sandstone, alt. 900 m., no. 12008, March 1925 (shrub; flowers yellow).

DILLENIACEAE

Determined by A. REHDER

Actinidia tetramera Maximowicz in Act. Hort. Petrop. xi. 35 (1889).—Finet & Gagnepain in Bull. Soc. Bot. France, lvi. Mém. iv. 21 (1905); Contrib. Fl. As. Or. ii. 21 (1907).—Dunn in Jour. Linn. Soc. xxxix. 404 (1911).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang valley, alt. 2450 m., no. 14728, Sept. 3, 1926 (huge woody climber, on Maple; leaves dark green, glossy; fruit green, striped darker green); forest of Wantsang ku, alt. 2450 m., no. 15026, Sept.–Oct. 1926 (liana 15 m. high, hanging over trees in dense masses; fruit brown, fleshy).

Clematoclethra integrifolia Maximowicz in Act. Hort. Petrop. xi. 38 (1889).—Komarov in Act. Hort. Petrop. xxix. 90 (1908).

SOUTHWESTERN KANSU. Lower Tebbu country: in mixed forests of Mayaku, alt. 2750 m., no. 14762, Sept. 5, 1926 (woody climber; leaf grayish blue beneath; fruit purplish black); upper Wantsang valley; alt. 2825 m., no. 14844, Sept. 12, 1926 (covering trees and bushes; leaf grayish blue beneath, petioles red); dense forests between Pezhu and Ngongo, alt. 2750 m., no. 14985, Sept.–Oct. 1926 (large liana densely covering trees up to 18 m. height; fruit black).

CENTRAL KANSU. Lien ho a shan: along grassy slopes with Spruces, alt. 3050 m., no. 12762, July 14–20, 1925 (4.5–6 m. high; flowers white); northern slopes, no. 13224, Aug. 1925 (woody climber on Pear trees; fruit purplish black).

All the specimens have the leaves ciliate with fine setae which occasionally are partly, rarely entirely, wanting on some leaves.

Clematoclethra lasioclada Maximowicz in Act. Hort. Petrop. xi. 38 (1889).—Komarov in Act. Hort. Petrop. xxix. 95 (1908).

SOUTHWESTERN KANSU. Lower Tebbu country: along Wantsang stream, alt. 2125–2200 m., no. 14659, Aug. 31, 1926 (vine or shrub with long rambling branches; leaf pale, beneath, petiole red at base; fruit dark purple): Wantsang valley, alt. 2450 m., no. 14710, Sept. 3, 1926 (huge woody climber covering Maple and Linden trees, trunk 8–10 cm. diam.); forests of Wantsang, alt. 2450 m., no. 14725, Sept. 1926 (woody climber festooning Maples and Linden trees; petioles dull red; fruit purplish red); forests of Wantsang ku, alt. 2600 m., no. 15015, Oct. 1926 (large liana climbing 15–18 m. high over trees; fruit black); forests of Tsaoshi valley, alt. 2325 m., no. 14742, Sept. 2, 1926 (woody climber); Pezhuku forests with Picea, alt. 2900 m., no. 14945, Oct. 1926 (liana climbing 12–18 m. high over trees); forests of Ngongo, no. 14970, Sept.–Oct. 1926 (climber 12–18 m. high; fruit black with reddish tinge).

CENTRAL KANSU. Lien ho a shan: Shanshen Miao, alt. 3050 m., no. 13490, Oct. 1925 (woody climber; fruit black).

The specimens which are all in fruit are quite glabrous except small axillary tufts of hairs on the under side of the leaves. In nos. 14742 and 14945 the peduncles are one-flowered, though distinctly bracted, but in their leaves and other characters they agree exactly with nos. 14725 and 15015.

MYRICACEAE

Determined by A. REHDER

Hololachne songarica Ehrenberg in Linnaea, ii. 273 (1827).—Ledebour, Icon. Pl. Ross. v. 14, t. 443 (1834) “soongarica.”—Niedenzu in Engler & Prantl, Nat. Pflanzenfam. abt. 3, vi. 293, fig. 133 J–P (1895).

Tamarix songarica Pallas in Act. Nov. Acad. Sci. Petrop. x. Math. 374, t. 10 (1797).

CENTRAL KANSU. Yellow River basin: loess plateaus and stream beds below Lanchow and north to Hsining, alt. 1825 m., no. 13235, Aug. 1925 (shrub 0.5 m.).

The genus *Hololachne* had not been recorded from China before.

Myricaria dahurica Ehrenberg in *Linnaea*, II. 278 (1827).—De Candolle, *Prodr.* III. 98 (1828).

Myricaria germanica var. *squamosa* (Desv.) Maximowicz, *Fl. Tangut.* 96 (1889); *Enum. Pl. Mongol.* 112 (1889).

SOUTHWESTERN KANSU. Tao River basin: Choni, along Tao ho, alt. 2600 m., no. 12150, May 1925 (shrub 1.75–2 m.; flowers pinkish purple).

EASTERN TIBET. Radja and Yellow River gorges: in stream bed of Dachso canyon, north of Radja, alt. 3100 m., no. 14058, June 1–2, 1926.

Myricaria alopecuroides Schrenk apud Fischer & Meyer, *Enum. Pl. Nov.* 65 (1841).—Ledebour, *Fl. Ross.* II. 131 (1844).

Myricaria germanica var. *alopecuroides* Maximowicz, *Fl. Tangut* 96 (1889); *Enum. Pl. Mongol.* 112 (1889).

SOUTHWESTERN KANSU. Upper Tebbu country: Yiwa ku, along stream, Drakana, alt. 2750 m., no. 14630, Aug. 22, 1926.

THYMELAEACEAE

Determined by A. REHDER

Wikstroemia chamaedaphne Meisner in De Candolle, *Prodr.* XIV. 547 (1857).—Rehder in Sargent, *Pl. Wilson.* II. 536 (1916).

SOUTHWESTERN KANSU. Lower Tebbu country: in gravel, Peshwekiang, alt. 2125 m., no. 14559, Aug. 30, 1926, (leaf dull green: flowers rich yellow); dry shale slopes of Wantsang and Chulungapu, alt. 2000 m., no. 15006, Sept.–Oct. 1926 (shrub 0.75–1 m.; leaf vivid green; flowers yellow fragrant).

Daphne genkwa Siebold. & Zuccarini, *Fl. Jap.* I. 137, t. 75 (1840).—Meisner in De Candolle, *Prodr.* XIV. 531 (1857).—Rehder in Sargent, *Pl. Wilson.* II. 538 (1916).

WESTERN SZECHUAN: north of Mienchow, on grassy slopes among Pine trees, no. 12012, March 1925 (shrub 30–60 m.; flowers lavender-pink, fragrant); south of Mienchow, northern Szechuan, along grassy dry banks, no. 12013, March 1925 (shrub 30 cm.; flowers pale); around Teyang, northern Szechuan, no. 12014 (shrub 30–60 cm.; flowers pinkish purple).

Daphne Giraldii Nitsche, *Beitr. Kenntn. Daphne*, 7 (1907).—Rehder in Sargent, *Pl. Wilson.* II. 545 (1916).

SOUTHWESTERN KANSU. Tao River basin: slopes of mountains in Maerhku valley, southeast of Choni, alt. 3050 m., no. 12552, June 1925 (shrub 1–1.25 m.; flowers orange-yellow, fragrant); Maerhku, Choni district, alt. 2750 m., no. 13510, Sept. 1925 (fruit red); forests of Choni, along streams, alt. 2750–3050 m., no. 12581, July 1925 (shrub 0.75–1 m.; flowers yellow); at Toyü, in patches, alt. 2300 m., no. 12898, July 1925 (shrub 0.75–1 m.).

Daphne tangutica Maximowicz in Mém. Biol. xi. 309 (1881); in Bull. Acad. Sci. St. Pétersb. xxvii. 531 (1882).—Rehder in Sargent, Pl. Wilson. ii. 545 (1916).

Daphne Wilsonii Rehder, in Sargent, Pl. Wilson. ii. 540 (1916).

SOUTHWESTERN KANSU. Tao River basin: Maerhku valley, open scrub, among Willows, alt. 2900 m., no. 12339, June 1925 (shrub 50 cm.; flowers white); outskirts of forests in Maerhku valley, alt. 2750–3050 m., no. 12344, June 1925 (shrub 0.75–1 m.; flowers pinkish purple); Maerhku, Choni, alt. 2925 m., no. 14894, Aug.–Sept. 1926 (shrub 30–60 cm.; fruit red); Minshan range, valley of Kadjaku beyond Tatsuto, alt. 3050 m., no. 12427, June 1925 (globose bush 30–60 cm.; flowers white); mountains of Tsarekika, east Tebbu land; alt. 3200 m., no. 13531, Oct. 1925 (shrub 60 cm.; flowers pale pink; fruit red); Kwang ke shan, west Tebbu land, alt. 3050 m., no. 13572, Sept.–Oct. 1925 (shrub 60 cm.; leaves fleshy; flowers white; fruit red). Upper Tebbu country: shade of Spruce forest, southern slopes of Minshan, alt. 2925 m., no. 12533, June 1925 (shrub 60 cm.; flowers rich purple).

WESTERN SZECHUAN: mountain south of Ching chuan, alt. 1825 m., no. 12044, April 1925 (shrub 1 m.; flowers purplish red).

With ample material before me consisting of more than 20 specimens from Kansu, western Szechuan and western Hupeh I am unable to separate specifically *Daphne Wilsonii* from *D. tangutica*; the former seems to have generally larger and broader leaves, larger flowers, often more flowers in an inflorescence and occasionally as in Wilson's no. 2947 from Hupeh and in Rock's no. 12044 from Szechuan additional axillary inflorescences below the terminal one. The pubescence of the mature branchlets is apparently more copious in *D. Wilsonii*, but it is never wanting entirely in the Kansu specimens: the leaves vary from acutish as occasionally in *D. Wilsonii* to obtuse and to emarginate which is the rule in *D. tangutica*. That the color of the flowers varies from white to violet or purple had been already stated by Maximowicz.

Two fragments received from Lévillé under the name of *Daphne Bodinieri* certainly belong here; one of them is without locality and the other marked "Yunnan." In his "Flora of Kouy Tchéou," p. 417, Lévillé transfers *D. Bodinieri* to *Wikstroemia* as *W. Bodinieri*; of the type specimens there are fragments in this herbarium which show that the flowering specimen is not a *Wikstroemia* but an *Apocynacea* probably near *Melodinus*; the fruit, however, is not an *Apocynacea*.

ELAEAGNACEAE

Determined by A. REHDER

Hippophae rhamnoides Linnaeus, Spec. 1023 (1753).—Schlechtendal in De Candolle, Prodr. xiv. 607 (1857).—Reichenbach, Icon. Fl. Germ. xi. 12, tab. 549, no. 1165 (1849).—Hemsley in Bot. Mag. cxxxi. tab. 8016 (1905).—Servettaz in Bot. Centralbl. Beih. xxv. 2, 5 (1909).

SOUTHWESTERN KANSU. Tao River basin: banks of Tao river, alt. 2550 m., no. 12208, June 1925 (shrub 1.75–2 m.); Maerhku valley, alt. 2900 m., no. 13571, Oct. 1925 (spiny shrub 3–4.5 m.; leaves green above, silvery beneath; fruit orange, globose). Lower Tebbu country: forest of Chingolo above Pezhu, alt. 2750 m., no. 14991, Sept.–Oct. 1926 (tree 3–4.5 m.; fruit deep red).

EASTERN TIBET. Kokonor region: Koko gorge, no. 13270, Sept. 1925 (spiny tree 4.5–6 m., trunk 30 cm. diam.; leaves silvery drab beneath; fruit globose, yellow); mountains of Lalaku, alt. 3500 m., no. 13275, Sept. 19, 1925 (shrub or bush, used as medicine for stomach ache).

A good photograph of a tree accompanied no. 13270 from the Koko gorge.

Elaeagnus angustifolia Linnaeus, Spec. 176 (1753).—Reichenbach, Icon. Fl. Germ. xi. 12, t. 549, no. 1166 (1849).

Elaeagnus hortensis M. B. *α. angustifolia* Schlechtendal in De Candolle, Prodr. xiv. 609 (1857).—Servettaz in Bot. Centralbl. Beih. xxv. pt. ii. 34, fig. 7, 1–10 (1909).

NORTHWESTERN KANSU. Richthofen range and adjacent region: planted and wild on Kanchow plain, foot of Nanshan, alt. 1825 m., no. 13319, Nov. 1925 (tree 6–9 m.; leaves glaucous silvery; fruit edible).

Hedera nepalensis K. Koch var. *sinensis* Rehder in Jour. Arnold Arb. iv. 250 (1923).

Hedera himalaica var. *sinensis* Tobler, Gatt. Hedera, 79, fig. 39–42 (1912).

Hedera himalaica Harms & Rehder in Sargent, Pl. Wilson. ii. 555 (1916), excl. syn. nonnull.—Non Tobler.

SOUTHERN KANSU: mountains of Motzuping, no. 12063, April 1925 (climbing shrub).

The genus *Hedera* has not been recorded from Kansu before.

Acanthopanax leucorrhizus Harms in Engler & Prantl, Nat. Pflanzenfam. iii. abt. vii. 49 (1897); in Bot. Jahrb. xxix. 488 (1900).—Bean in Bot. Mag. cxli. t. 8607 (1915).—Harms in Mitteil. Deutsch. Dendr. Ges. xxvii. 9 (1918).

Eleutherococcus leucorrhizus Oliv. in Hooker's Icon. xviii. sub t. 1711 (1887).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang, alt. 2225–2450 m., no. 14669 and 14721 Aug. 31 and Sept. 3, 1926 (tree 4.5–6 m., branches drooping; leaves dull dark green above, pale beneath; fruit black, in umbels on drooping peduncles); forest of Wantsang ku, alt. 2450 m., no. 15023, Sept.–Oct. 1926 (shrub 3–4.5 m. fruit black, in drooping umbels; flowers white).

CENTRAL KANSU. Lien ho a shan: limestone range, alt. 2900 m., no. 13665, Oct. 1925 (shrub 1.75 m.).

This species seems to have not been collected in Kansu before.

Acanthopanax Giraldui Harms in Bot. Jahrb. xxxvi. beibl. lxxxii. 80 (1905); in Mitteil. Deutsch. Dendr. Ges. xxvii. 19, t. 3, fig. A–H (1918).

SOUTHWESTERN KANSU. Tao River basin: forests of Shiao ku, beyond Adjūan, alt. 3050 m., no. 12845, July 1925 (spiny shrub 1-1.25 m.; flowers greenish); Shiao ku, en route to Tsarekika, east Tebbu, alt. 3200 m., no. 13534, Oct. 1925 (spiny shrub, 1.5-2 m.; fruit black). Lower Tebbu country: forest of upper Mayaku, alt. 2750 m., no. 14764, Sept. 5, 1926 (shrub or small tree, 4.5-7 m., covered with soft spines throughout; leaves dark green, glossy); forests back of Wantsang gomba, alt. 2750 m., no. 14811, Sept. 1926 (shrub 1.75-2 m., covered with small spines); forests of Dayayaku, southern slopes of Minshan, alt. 3050 m., no. 14866, Sept. 17, 1926 (shrub 2-3 m., stems densely covered with soft spines; fruit black); forests of Ngongo, with *Picea* etc., alt. 2750 m., no. 14983, Sept.-Oct. 1926 (shrub 3-4.5 m., densely spiny; fruit black).

CENTRAL KANSU. Lien hoa shan: forest of mountain, alt. 3050 m., no. 12695, July 1925 (shrub 2 m., spiny on young shoots; flowers white with greenish tinge); alt. 2925 m., no. 13491, Oct. 1925 (shrub 2-2.5 m., spiny; fruit black).

This species had been collected in Kansu before by R. C. Ching (Wulsin Exp. no. 887).

***Acanthopanax Giralddii* var. *pilosulus* Rehder, var. nov.**

A typo recedit ramulis subinermibus vel sparse setuloso-aculeolatis, foliolis angustioribus lanceolatis vel oblanceolatis et minute subsimpliciter serrulatis vel rhombico-lanceolatis et distinctius duplicato-serrulatis, supra sparse scabrido-pilosulis, subtus praesertim ad costam et in facie sparsius breviter villosulo-pilosis.—Frutex 1-1.75 m. altus; foliola fere semper 5, 2-6 cm. longa et 5-12 mm. lata (in typo), vel 2.5-4.5 cm. longa et 8-15 mm. lata; pedunculi glabri, 0.5-2 cm. longi, rarius fere nulli; styli 5, infra medium vel fere ad basin divisi.

SOUTHWESTERN KANSU. Upper Tebbu country: in Willow scrub, with Birches, along streams, alt. 3350 m., no. 13106, July-Aug. 1925 (shrub 1.75 m., with red spines; type). Tao River basin: west of Adjūan, eastern Minshan range in Birch and Spruce forests, alt. 3050 m., no. 12657, July 5, 1925 (shrub 1 m.).

The type of this new variety with its nearly unarmed stems, narrower and pubescent leaflets looks quite distinct from typical *A. Giralddii*. In its nearly unarmed stems it resembles var. *inermis* Harms & Rehd., but it differs from it as from the typical form in its much narrower pubescent and finely, nearly simply serrulate leaflets. The co-type no. 12657 with its broader doubly serrulate leaflets forms a transition toward var. *inermis* from which it differs, however, in the pubescent leaflets.

***Acanthopanax stenophyllum* Harms f. *angustissimus* Rehder, forma nova.**

A typo recedit foliolis fere linearibus 3-5 mm. latis minute serrulatis.—Frutex 0.75-2.5 m. altus, ramulis ad nodos aculeis setiformibus erectis paucis armatis.

SOUTHEASTERN KANSU. Lower Tebbu country: forests of Wantsang, alt. 2300 m., no. 14850, Sept. 12, 1926 (shrub 1.75–2.75 m.; fruit globose, purple).

On account of its long linear leaflets this form looks very distinct, but in all other characters it agrees with the typical form, which is known apparently only from Shensi.

Aralia chinensis L. var. *nuda* Nakai in Jour. Arnold Arb. v. 32, 242 (1924).

Aralia chinensis var. *glabrescens* Harms & Rehder in Sargent, Pl. Wilson, II, 567 (1911).—Non Schneider.

SOUTHWESTERN KANSU. Lower Tebbu country: dense forests of Wantsang, alt. 2225 m., no. 14673, Sept. 1926 (tree 9 m.; fruit bluish black); Wantsang valley, undergrowth in Birch and Maple forest, alt. 2450 m., no. 14825, Sept. 1926 (tree 4.5 m.). Upper Tebbu country: Yiwa ku valley, forested slopes, alt. 2750 m., no. 14572, Aug. 28, 1926 (tree 3 m., trunk spiny, branches spreading; leaves gray beneath; flowers yellow); Yiwaku, south of Drakana, alt. 2600, no. 15085, Oct. 1926 (tree 4.5–6 m.; inflorescence several feet long; flowers rich yellow; fruit black).

CENTRAL KANSU. Lien ho a shan: scrub forest, northern slopes, above Shanshen Miao, alt. 2900 m., no. 13215, Aug. 1925 (tree 4–4.5 m., with few spreading branches; flowers yellowish); Shanshen Miao, alt. 2750 m., no. 13481, Oct. 1925 (shrub 3 m.; fruit purplish black).

Neither this variety nor typical *A. chinensis* seems to have been collected in Kansu before.

CORNACEAE

Determined by A. REHDER

Cornus macrophylla Wallich in Roxburgh, Fl. Ind. 1. 433 (1820).—Brandis, Forest Fl. Brit. Ind. 252, t. 32 (1874).—Hemsley in Bot. Mag. cxxxv. t. 8261 (1909).—Wangerin in Engler, Pflanzenr. iv-229, p. 71 (1910).

Cornus brachypoda C. A. Meyer in Ann. Sci. Nat. sér. 3, iv. 74 (1845).—Rehder in Sargent, Trees & Shrubs i. 81, t. 41 (1903).—Wangerin in Engler, Pflanzenr. iv-229, p. 64 (1910).

SOUTHWESTERN KANSU. Tao River basin: in Picea forests, beyond Kadjaku, near Lupassu, alt. 2750 m., no. 13167, Aug. 1925 (tree 4.5–6 m.; leaves grayish beneath). Lower Tebbu country: forests of Wantsang valley, alt. 2200 m., no. 14662, Aug. 31, 1926 (shrub or tree with horizontal branches; leaves dull green; panicle red, fruit dull bluish black); along stream of Mayaku, alt. 2125 m., no. 14787, Sept. 9, 1926 (tree 4.5–6 m.; leaves bluish gray beneath; panicles red); forests of Ngongo, alt. 2600 m., no. 14968, Sept.–Oct. 1926 (tree 7 m.; leaf gray beneath; fruit bluish black).

CENTRAL KANSU. Lien ho a shan: along grassy slopes with Spruces, alt. 3050 m., no. 12761, July 14–20, 1925 (shrub or tree 3–6 m.;

leaves gray-glaucous beneath; flowers cream-colored); Shanshen Miao, alt. 2750 m., no. 13483, Oct. 1925 (tree 6-7.5 m.; leaves pale beneath; fruit purple).

This species had been collected in Kansu before by Wm. Purdom. Rock's no. 14662 from lower Tebbu country differs from the usual form in the slight villous and fulvous pubescence of the petioles and the lower part of the midrib on the under side of the rather small leaves which measure only 3-5.5 cm. in length.

ERICACEAE

Determined by E. H. WILSON

Rhododendron anthopogonoides Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiii. 350 (1877); in Mém. Biol. ix. 772 (1877).—Hemsley in Jour. Linn. Soc. xxvi. 19 (1889).—Kanitz in Szechenyi, Keletasz. Utján. Tudom. Ered. ii. 820 (Pl. Enum. 33) (1891); in Szechenyi, Wissensch. Ergeb. Reise Ostas. ii. 710 (1898).—Millais, Rhodod. 114 (1917).

SOUTHWESTERN KANSU. Tao River basin: ridges west of Adjün, alt. 3048-3498 m., nos. 12194 and 12651, June and July 1925 (shrub 0.6-1.3 m. high; flowers white; leaves aromatic, odor of Eucalyptus); grassy slopes, Mt. Lissédzadza, alt. 3650 m., no. 12627, July 6-10, 1925 (shrub 1.3-1.5 m. high; flowers greenish white; leaves aromatic); Mt. Kwang ke, west Tebbu land, alt. 3498 m., no. 13597, Sept.-Oct. 1925 (shrub 1.5 m. high; flower tubular, white; leaf pubescent beneath, very aromatic). Upper Tebbu country: Maerhku, alt. 3048 m., no. 13636, Sept.-Oct. 1925 (shrub 1.5 m. high; flowers white, tubular; leaves aromatic).

CENTRAL KANSU. Lien ho a shan: in *Rhododendron*, Spruce and scrub forest, alt. 3048-3198 m., nos. 12723 and 13610, July and Oct. 1925 (shrub 1-1.5 m. high; flowers greenish white, tubular; leaves very aromatic).

EASTERN TIBET. Kokonor Region: Koko gorge, alt. 3348 m., no. 13279, Sept. 1925 (shrub 1.3-1.5 m. high; flowers whitish pink, tubular; leaves bronze-colored, aromatic).

Rhododendron thymifolium Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiii. 351 (1877); in Mém. Biol. ix. 773 (1877).—Hemsley in Jour. Linn. Soc. xxvi. 31 (1889).—Millais, Rhodod. 254 (1917).

SOUTHWESTERN KANSU. Tao River basin: Minshan range, Mt. Kwang ke, alpine meadows, alt. 3198-3800 m., nos. 12368, 12370, 12411 and 13598, June and Sept.-Oct. 1925 (shrub 0.3-1 m. high; flowers pale lavender, bluish purple).

NORTHWESTERN KANSU. Richthofen Range and adjacent region: Tapanshan, northeastern slopes near Peitattung, alt. 3650 m., no. 13303, Oct. 1925 (shrub 0.6-1 m. high; flowers blue; leaf yellowish beneath).

EASTERN TIBET. Grasslands between Labrang and Yellow River: rocky moist slopes at Borlung ngongma, south of Kechbach nira pass, alt. 3698 m., no. 13904, May 7, 1926 (shrub 1-1.3 m. high; leaf very aromatic).

The minute oval to elliptic-obovate leaves densely crowded with grey lepidote scales, which show on the underside as an intense grey felt, the usually solitary (rarely 2 or 3 together) flowers with short tube, spreading corolla lobes and prominent stamens overtopping the stigma, readily distinguish this pleasing little alpine species among its very numerous brethren.

Rhododendron capitatum Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiii. 351 (1877); in Mém. Biol. ix. 773 (1877).—Hemsley in Jour. Linn. Soc. xxvi. 21 (1889).—Kanitz in Szechenyi, Keletázs, Utján. Tudom. Ered. ii. 820 (Pl. Enum. 33) (1891); in Szechenyi, Wissensch. Ergeb. Reise Ostas. ii. 710 (1898).—Millais, Rhodod. 136 (1917).

SOUTHWESTERN KANSU. Tao River basin: south of Choni, toward Tebbu land, alt. 3048 m., nos. 12191 and 12471, June 1925 (shrub 0.6-1 m. high; flowers bluish-purple); Minshan range, meadows of Mt. Kwang ke, alt. 3048-3800 m., nos. 12371, 13600, 13605 and 13596, Sept.-Oct. 1925 (shrub 0.6-1.4 m. high; flowers large, deep lavender to blue); Minshan range, meadows of Kadjaku, alt. 3048-3353 m., nos. 12376, 13674 and 13688, June, Sept.-Oct. 1925 (shrub 0.3-1 m. high; flowers bluish purple); west of Adjüan, east Tebbu land, alpine meadows, 3198-3650 m., nos. 12647 and 13622, July and Sept.-Oct. 1925 (shrub 1-1.3 m. high; flowers lavender-purple). Upper Tebbu country: southern slopes of Minshan, alpine meadows, alt. 3128 m., no. 12518, June 1925 (shrub 1 m. high; flowers deep purplish red); Maerhku east Tebbu land, alt. 3350 m., no. 13634, Oct. 1925 (shrub 1 m. high; flowers bluish purple); Drakana, covering steep mountain slopes like heather, alt. 3350 m., no. 13635, Sept.-Oct. 1925 (shrub 0.6-1 m. high; flowers bluish purple).

CENTRAL KANSU. Lien ho a shan: in alpine meadows, between Taochow and Titao, alt. 3403 m., nos. 12731 and 13611, July 14-20, Oct. 1925 (shrub 0.3-1 m. high; flowers purplish-blue).

EASTERN TIBET. Grasslands between Labrang and Yellow River: rocky moist slopes at Borlung ngongma, south of Kechbach nira pass, alt. 3689 m., nos. 13904A and 13905, May 7, 1926 (shrub 1 m. high). Radja and Yellow River gorges: grassy slopes above Spruce forest, southwest of Yellow River, opposite Radja, alt. 3650 m., nos. 13956 and 14101, May 24 and June 10, 1926 (shrub 0.6-1 m. high; flowers purplish blue); rocky and grassy slopes above Picea forest, northern slopes of Yellow River, southwest of Radja, alt. 3650 m., no. 13968, May 25, 1926 (shrub 1 m. high); Lungmar pass, 15 li south of East Radja, alt. 3350 m., no. 14006, May 1926 (shrub 1 m. high; flowers purplish lavender); alpine meadows in masses

with Willows, between Howa and Arh'tsa canyon, north of Radja, alt. 3403 m., no. 14041, May 31, 1926 (shrub 1 m. high; flowers pale purple); grassy alpine slopes, Mochur nira pass, alt. 3640 m., no. 14045, May 31, 1926 (shrub 1-1.3 m. high).

It is possible, though I do not think probable, that some of the fruiting specimens, such as no. 13596, may represent another closely related species. In this very difficult group of alpine *Rhododendrons* it is impossible to diagnose species unless complete material is present. The boreal character of the upland flora of Kansu is well shown by the paucity of *Rhododendron* species.

A photograph of a flowering shrub accompanied no. 12647 from near Adjüan, east Tebbu land.

Rhododendron micranthum Turczaninow in Bull. Soc. Nat. Moscou, x. no. vii. 155, (1837); xxi. pt. ii, 502 (Fl. Baical. Dahur.) (1848).—De Candolle, Prodr. vii. 727 (1839).—Maximowicz in Mém. Acad. Sci. St. Pétersb. xvi. no. 9, 18, t. 4, figs. 1-10 (Rhod. As. Or.) (1870).—Franchet in Nouv. Arch. Mus. Paris, sér. 2, vi. 77 (Pl. David. i. 197) (1883).—Hemsley in Jour. Linn. Soc. xxvi. 27 (1889).—Komarov in Act. Hort. Petrop. xxv. 205 (Fl. Mandsh. iii.) (1907).—Chip in Bot. Mag. cxxxiv. t. 8198 (1908).—Schneider, Ill. Handb. Laubholzk. ii. 475, figs. 315 p-q, 316g (1909).—Hemsley & Wilson in Kew Bull. Misc. Inform. 1910, p. 117.—Pampanini in Nuov. Giorn. Bot. Ital. n. ser. xvii. 683 (1910).—Rehder & Wilson in Sargent, Pl. Wilson. i. 513 (1913).—Bean, Trees & Shrubs Brit. Isl. ii. 368 (1914).—Rehder in Bailey, Stand. Cycl. Hort. v. 2938 (1916).—Millais, Rhodod. 210 (1917).—Nakai, Fl. Sylv. Kor. pt. viii. 30, t. 7 (1919).—Osborn in Garden, lxxxiv. 270, fig. (1920).—Wilson in Jour. Arnold Arb. iv. 42 (1923).

Rhododendron Rosthornii Diels in Bot. Jahrb. xxix. 509 (1900).

Rhododendron Pritzelianum Diels, l. c. 510.

SOUTHWESTERN KANSU. Lower Tebbu country: gravelly slopes of Peshwekiang gorge, alt. 2069 m., no. 14554, Aug. 30, 1926 (shrub 1.3 m. high); dry gorges of Chulungapu, near Wantsang, alt. 2134 m., no. 15004, Sept.-Oct. 1926 (shrub 1.5-1.8 m. high; flowers white, in dense racemes).

This species is widespread, being found from the mountains of northern Korea westward through southern Manchuria and the northern provinces of China to Kansu with its southern limits in Hupeh and western Szechuan.

Rhododendron Rockii Wilson, sp. nov.

Frutex vel arbor 4-6-metralis, cortice pallide cinereo; ramuli juniores pallide cinereo-lepidoti. Folia congesta, oblongo-lanceolata ad oblongo-ob lanceolata, 6-12 (pleraque 8-10) cm. longa et 1-2 (pleraque 1.5-2) cm. lata, breviter acuminata, basi attenuata vel cuneata, supra intense viridia, leviter reticulata, subtus dense tomento brevi cinereo-fusco

floccoso tomentum album crustaceum obtegente vestita, costa supra impressa subtus elevata, nervis secundariis patentibus leviter ascendentibus supra impressis; petioli robusti, 0.8–1.8 cm. longi, supra canaliculati. Flores 6–12, umbellato-racemosi; pedicelli satis graciles, 1–1.5 cm. longi, tomento brevi crispo floccoso pallido vel rufo-cinereo vestiti; calyx glabrescens, annularis, dentibus 5 triangularibus minutis; corolla pallide rosea, punctata, infundibuliformi-campanulata, 3–4 cm. longa, 4–5 cm. lata, intus ad basin puberula, 5-loba, lobis rotundatis interdum truncatis vel emarginatis, 1–1.5 cm. longis et 1.5–2 cm. latis; stamina 9–10, filamentis inaequalibus rectis compressis infra medium puberulis, antheris oblongis fuscis; pistillum stamina superans, ovario conico 5 mm. longo sulcato dense tomento cinereo vel pallide cinereo-brunneo oblecto, stylo fere recto basi leviter villosa sursum incrassato, stigmatibus capitato. Fructus non visus.

SOUTHERN KANSU: slopes, beyond Szechuan border, rain forest, alt. 2009 m., nos. 12064 (type), 12081 and 12083, April 1, 1925.

This handsome new species is characterized by its narrow leaves clothed with short, grey-brown floccose tomentum arising above a white crustaceous indumentum, by its relatively large flowers with villous pedicels, puberulous filaments and ovary clothed with grey-brown floccose tomentum. It is most closely related to *R. adenopodium* Franch. of western Hupeh and northeastern Szechuan, which has much broader leaves, a white floccose tomentum clothing a dun-colored crustaceous indumentum, pedicels and ovary clothed with stalked glandular hairs and a relatively large membranous calyx. From the collector's notes this new species appears to be confined to the Kansu-Szechuan boundary, where a moist climate prevails.

Rhododendron Przewalskii Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiii. 350 (1877); in Mém. Biol. ix. 771 (1877).—Hemsley in Jour. Linn. Soc. xxvi. 29 (1889).—Kanitz in Szechenyi, Keletasz. Utján. Tudom. Ered. ii. 820 (Pl. Enum. 34) (1891); in Szechenyi, Wissensch. Ergeb. Reise Ostas. ii. 711 (1898).—Bean in Flora & Sylva, iii. 164 (1905); in Kew Bull. Misc. Inform. 1914, p. 385; Trees, Shrubs, Brit. Isles, ii. 373 (1914), excluding reference to Wilson's introduction.

SOUTHWESTERN KANSU. Tao River basin: Minshan range, Mt. Kwang ke, alt. 3348 m., no. 12399, June 1925 (shrub 1.8–2.5 m. high; flowers white); Minshan range, valley of Kadjaku, alt. 3198–3650 m., nos. 12415, 12373, 12417, 12397 and 12365, June 1925 (shrub 1.5–3 m. high; flowers white); same locality, alt. 3198 m., no. 12419, June 1925 (shrub 1.8–2.5 m. high; flowers pink); west of Taoho mountains, alt. 3348 m., no. 12154, May 1925 (shrub 1.5–1.8 m. high); below Mt. Kwang ke, Drakana, among limestone rocks, Abies forest, alt. 3198 m., nos. 13679 and 13681, Sept.–Oct. 1925 (shrub 1–1.8 m. high); Drakana, beyond Kwang ke shan, west Tebbu land, alt. 3198–3498 m., no. 13686, Sept. 1925 (shrub 1.5 m. high); Kadjaku valley, below Mt.

Kwang Kei, Tebbu land, open alpine regions, alt. 3498-3650 m., nos. 12364, 13694 and 13695, June, Sept.-Oct. 1925 (shrub 1-4.5 m. high; flowers white); Maerhku valley, N. Minshan, spruce forest, 3048-3348 m., nos. 12189 and 13676, June and Sept.-Oct. 1925 (shrub 1-1.5 m. high; flowers white, spotted purplish); west of Adjüan, eastern Minshan, alt. 3348 m., no. 12652, July 5, 1925 (shrub 1.3-1.5 m. high; flowers white); west of Adjüan, east Tebbu land, alt. 3198-3348 m., nos. 13677 and 13685, Sept.-Oct. and Oct.-Nov. 1925 (shrub 1.3-1.5 m. high). Lower Tebbu country: on summit of spur dividing Mayaku from Sambaku, alt. 3438 m., no. 14770, Sept. 6, 1926 (shrub 1-1.3 m. high; flowers white). Upper Tebbu country: at foot of Shimen, alt. 3348-4100 m., nos. 13047 and 13052, July-Aug. 1925 (shrub 1.5-1.8 m. high); Mt. Kwang ke, alt. 3650-3800 m., no. 13629, Sept.-Oct. 1925 (shrub 1.3-1.5 m. high; flowers white).

CENTRAL KANSU. Lien ho a shan: among limestone rocks, alt. 3348 m., no. 13612, Sept.-Oct. 1925 (shrub 1-1.3 m. high); between Taochow and Titao, alt. 3348 m., no. 12672, July 1925 (shrub 1-1.3 m. high; flowers white, pinkish tinge).

NORTHWESTERN KANSU. Richthofen range and adjacent region: Tapanshan, northeastern slopes near Peitattung, alt. 3650 m., no. 13302, Oct. 1925 (shrub 1.3-1.8 m. high).

EASTERN TIBET. Kokonor Region: lateral gorge of Koko gorge, alt. 3348 m., no. 13278, Sept. 1925 (shrub 1.5-2.5 m. high; flowers whitish pink; fruits greenish). Grasslands between Labrang and Yellow River: rocky moist slopes at Borlung ngongma, south of Kechach nira pass, alt. 3689 m., no. 13906, May 7, 1926 (shrub 0.6-1 m. high; flower probably white).

This *Rhododendron* would appear to be widespread on the mountains of Kansu and the adjacent region of eastern Tibet and to be confined thereto. The collector remarks that here and there he found this *Rhododendron* growing on limestone rocks. The rich green upper surface of its leaves and the yellow petiole give it a distinct appearance. The pubescence on the under surface of the leaves presents a remarkable range of variation in quantity. On some specimens the leaves are totally devoid of indumentum on the under surface; in others some leaves are perfectly glabrous, others partially glabrous; others are densely covered with a short felted grey or brownish gray tomentum. In some this tomentum is confined more or less to near the midrib. The umbellate corymbose inflorescence is compact, rounded and often contains as many as twenty flowers. The corolla is bell-shaped and the flower is everywhere glabrous except on the lower half of the filaments, which are somewhat villose.

After examining the large suite of specimens collected by Mr. Rock I am of the opinion that *R. kialense* Franch. is a distinct, if critical, species closely related to *R. Przewalskii* Maxim. The specimens collected in western Szechuan and by Rehder & Wilson (in Sargent, Pl.

Wilson. i. 534 (1913)) referred to *R. Przewalskii* belong to *R. kialense*. From the description (Rhodod. ser. 2, 167 (1924)) I think that *R. kansuense* Millais is probably identical with *R. Przewalskii* Maxim.

Rhododendron rufum Batalin in Act. Hort. Petrop. xi. 490 (1891).—Millais, Rhodod. 237 (1917).

SOUTHWESTERN KANSU. Tao River basin: Choni, west of Taoho mountains, alt. 3348 m., nos. 12152, 12153 and 12156, May 1925 (shrub 2.5–4.5 m. high; flowers white, purplish pink tinge); lateral valley of Taoho, south of Choni, alt. 3048–3348 m., nos. 12230, 12322, 12231 and 12234, June 1925 (shrub 1.5–2.5 m. high; flowers pale pink or white, pinkish tinge, spotted purple); Choni, Taoho watershed, alt. 3048 m., nos. 12232 and 12233, June 1925 (shrub 1.3–4.5 m. high; flowers white, purplish pink stripes); Kadjaku, alt. 3198–3348 m., nos. 13696 and 13697 Sept.–Oct. 1925 (shrub 4.5 m. high; flowers pinkish with deep purple spots); Minshan range, Mt. Kwang ke, alt. 3348–3498 m., nos. 12366, 12374, 12380, 12395, 12398, 12400, 12418 and 12422, June 1925 (shrub 1.5–4.5 m. high; flowers white, spotted crimson, pinkish purple); mountains of Maerhku gorge, Choni territory, alt. 3228 m., nos. 12331, 12332 and 12333, June 1925 (shrub 1.5–4.5 m. high; flowers white to pinkish lavender, spotted purplish); Maerhku valley, N. Minshan, alt. 2893–3348 m., nos. 12190, 12324, 12325, 12326, 12328, 12330, 12343, 13649, 13650, 13682, 13683, 13691, 13692 and 13693, June and Sept.–Oct. 1925 (shrub 1.3–5.5 m. high; flowers white, pinkish purple); Mt. Kwang ke, alt. 3498–3650 m., nos. 12367, 12369, 13599 and 13601, June and Sept.–Oct. 1925 (shrub 1.3–4.5 m. high; flowers white-pink to purplish); below Mt. Kwang ke, Drakana, among limestone rocks, alt. 3498 m. no. 13680, Sept.–Oct. 1925 (shrub 2.5–3.6 m. high; flowers pinkish); forest at Laliku, alt. 3348–3650 m., no. 14928, Oct. 20, 1926 (shrub 3–4.5 m. high); Hsiaoku, below Mt. Lissedzadza, east Tebbu land, alt. 3198–3348 m., no. 13684, Oct. 1925 (shrub 1.8–2.5 m. high); west of Adjüan, east Tebbu land, alt. 3198 m., no. 13678, Sept.–Oct. 1925 (shrub 1.5–2.5 m. high). Lower Tebbu country: Wantsang valley, alt. 3048–3198 m., nos. 14836 and 15014, Sept. and Sept.–Oct. 1926 (shrub 3–4.5 m. high). Upper Tebbu country: Mt. Kwang ke, alt. 3498 m., nos. 13628, 13630, Sept.–Oct. 1925 (shrub 1.8–6 m. high, flowers deep pink, spotted purple); Maerhku, east Tebbu land, alt. 3198 m., nos. 13640 and 13643, Sept.–Oct. 1925 (shrub 1.3–1.5 m. high; flowers white, purplish pink); Kadjaku valley, west Tebbu land, alt. 3198 m., no. 13645, Sept.–Oct. 1925 (shrub 1.3–2.5 m. high; flowers pink); mountains of Adjüan, east Tebbu land, alt. 3198–3348 m., no. 13647, Sept.–Oct. 1925 (shrub 1.3–1.8 m. high; flowers pinkish white, spotted purple).

CENTRAL KANSU. Lien hoa shan: between Taochow and Titao, alt. 3048–3498 m., nos. 12677, 12728 and 13613, July and Sept. 1925 (shrub 1.5–4.5 m. high; flowers probably pink).

The leaves of this common Kansu species are usually broadest above the middle but vary in shape from oblong-obovate to elliptic-oblong, sometimes elliptic; the base is rounded or slightly auricled; the lamina varies in length from 4–16 cm. and in width from 2–8 cm. The upper surface is glabrous, finely reticulate, with impressed midrib. The under surface is densely clothed with a floccose tomentum; on young leaves it is at first greyish or brownish grey, but it soon becomes ferruginous or red-brown. The inflorescence is compact and rounded and often contains as many as twenty flowers. The pedicels are more or less grey, floccose-tomentose. The corolla is white or pinkish and spotted, and the filaments vary from subglabrous to densely villose in the lower half. The style is always glabrous except at the very base; the ovary is tomentose. The undescribed fruit is cylindric, often slightly curved, 2–2.5 cm. long and 0.5–0.8 cm. broad with slightly undulate valves, glabrescent, usually more or less sparsely clothed with grey to rufous brown, curled, floccose tomentum.

Photographs of large flowering shrubs accompanied no. 12422 from Mt. Kwang ke, Tebbu land (see plate 13).

In describing our *Rhododendron Weldianum* (in Sargent, Pl. Wilson. i. 532 [1913]) my colleague, Alfred Rehder, and myself point out its close relationship with *R. rufum* Batalin. I am now of the opinion that my no. 4250 collected near Sungpang ting is really referable to Batalin's species. *R. Weldianum* Rehd. & Wils. would appear to be a critical species characterized mainly by the much more persistent red-brown tomentum on the fruit. The material, however, is poor. It is native of a region somewhat removed from Kansu and fortunately is in cultivation, so when it blooms proper comparisons can be made. From the description I strongly suspect that *R. Wallaceanum* Millais (Rhodod. ser. 2, 259 (1924)) is referable to *R. rufum* Batal.

R. rufum was first discovered in extreme northwestern Szechuan in the valley of the River Ksernzo in August, 1895, by the Russian traveller, G. N. Potanin. It would appear to have been first discovered in Kansu by William Purdom (nos. 1077 and 1078) when collecting for the Arnold Arboretum in 1911. He found it south of Minchow growing at an altitude of 8000–9000 feet above sea level.

Arctous ruber Nakai in Tokyo Bot. Mag. xxxviii. 40 (1924); Trees and Shrubs Jap., i. 156, fig. 90 (1922); ed. 2, 216 (1927).

Arctous alpinus var. *ruber* Rehder & Wilson in Sargent, Pl. Wilson. i. 556 (1913).—Nakai, Fl. Sylv. Kor. viii. 49, fig. 19 (1919).

Arctostaphylos rubra Fernald in Rhodora, xvi. 32 (1914).

SOUTHWESTERN KANSU. Tao River basin: Minshan range, Mt. Kwang ke, 3650–3800 m., nos. 12382 and 13609, June and Sept.–Oct. 1925 (flowers yellow; fruits red, large). Upper Tebbu country: covering limestone boulders and in crevices at foot of main Shimen, alt. 3650 m., no. 13081, July–Aug. 1925 (prostrate shrub; fruits brick red).

In Kansu as in northwestern Szechuan this plant appears to be confined to calcareous soils.

MYRSINACEAE

Determined by A. REHDER

Myrsine semiserrata Wallich in Roxburgh, Fl. Ind. II. 293 (1824); Tent. Fl. Nepal. 34, t. 24 (1824-26).—Mez in Engler, Pflanzenr. IV.-236, p. 339 (1902).

WESTERN SZECHUAN: south of Ching chuan on rocky slopes, alt. about 1200 m., no. 12019, March 1925.

Most of the leaves of Rock's specimen are entire, only few are slightly toothed with not more than one to four teeth on each side.

Myrsine africana Linnaeus, Spec. 196 (1753).—Mez in Engler, Pflanzenr. IV.-236, p. 340 (1902).

WESTERN SZECHUAN: north of Kiang yu, northern Szechuan, on banks of Fu Kiang among rocks no. 12011, March 1925 (shrub 0.3-0.6 m.; flowers red).

PLUMBAGINACEAE

Determined by A. REHDER

Limonium aureum Hill, Veget. Syst. XII. 37,* ind., t. 37, fig. 4 (icon mala) (1773).—Kuntze, Rev. Gen. II. 395 (1891).

Statice aurea Linnaeus, Spec. 396 (1753).—Reichenbach, Iconog. Pl. II. 86, t. 195, fig. 336 (1824).—Boissier in De Candolle, Prodr. XII. 641 (1848).

CENTRAL KANSU Yellow River Basin: loess ravines below Lanchow, beyond Taosha, alt. 1825 m., no. 13239, Aug. 1925 (shrub 30 cm.; flowers yellow).

The specimen differs from *L. aureum* in its rather dense stellate or fasciculate pubescence, while according to the description and the only meagre specimen I saw (ex Herb. Bunge) the plant is only tuberculate. The plant is larger, much more copiously branched and more floriferous than the figure in Reichenbach's Iconographia.

SYMPLOCACEAE

Determined by A. REHDER

Symplocos Wilsonii Brand in Fedde Rep. Spec. Nov. III. 216 (1906).

SOUTHERN KANSU: on border of Szechuan and Kansu before reaching Motzuping, alt. 1825 m., no. 12058, April 1-2, 1925 (tree 3-4.5 m.; flowers yellowish green); between Motzuping and Pikou, alt. 1825 m., no. 12060, April 2, 1925 (tree 4.5 m.; flowers yellow).

No species of *Symplocos* had been recorded from Kansu before and this species reaches only the extreme southern border of that province.

OLEACEAE

Determined by A. REHDER

Fraxinus platypoda Oliver in Hooker's Icon. XX. t. 1929 (1890).—Lingelsheim in Engler, Pflanzenr. IV.-243, pt. I-II. 39, fig. 11c (1920).

¹The species appears on p. 37* under the generic heading *Limonium* as *Statice aurea*, but in the index it is listed as "*Limonium aurea*."

SOUTHWESTERN KANSU. Lower Tebbu country: in mixed forest of Wantsang Valley, alt. 2300-2450 m., no. 14832, Sept. 1926 (tree 15-24 m.).

This species had not been recorded before from Kansu.

Forsythia Giralddiana Lingelsheim in Jahresber. Schles. Ges. Vaterl. Cult. II. Abt. Zool.-Bot. Sect. 1908, p. 1; in Engler, Pflanzenr. IV.-243, pt. I-II. 110, fig. 11 (1920).

Forsythia Giralddii Pampanini in Nuov. Giorn. Bot. Ital. n. ser. XVII. 688 (1910).

SOUTHERN KANSU: valley north of Tan chang, no. 12057, April 14, 1925 (shrub 1.25 m.; flowers yellow).

From the type of *F. Giralddiana* Rock's specimen differs in the smaller fruits which are only about 1 cm. long, but it agrees in the nearly terete branchlets and in the epidermis of the two-year-old branchlets separating in thin hyaline flakes. The flowers which have not yet been described are very similar to those of *F. viridissima* Lindl. with sepals about half as long as the corolla-tube and rather narrow corolla-lobes. The species had not been recorded from Kansu before.

Forsythia suspensa Vahl, Enum. Pl. I. 39 (1804).—Siebold & Zuccarini, Fl. Jap. I. 12, t. 3 (1835).

WESTERN SZECHUAN: south of Ching chuan, on rocky, grass covered slopes, alt. 1200 m., no. 12020, March 1925 (shrub 1.5 m.; flowers pendent, satin-yellow).

Syringa microphylla Diels in Bot. Jahrb. XXIX. 531 (1900).—Lingelsheim in Engler, Pflanzenr. IV.-243, pt. I-II. 86, fig. 5 (1920).

SOUTHWESTERN KANSU. Tao River basin: lamasery of Choni, alt. 2600 m., no. 12203, June 1925 (shrub 2-2.5 m.; flowers lavender); Choni lamasery, upper Yamen, alt. 2600 m., no. 13698, September, 1925 (tree 4.5-6 m.; flowers pink, not fragrant).

Rock's specimens are apparently from cultivated plants.

Syringa Potanini Schneider in Fedde Rep. Spec. Nov. IX. 80 (1910);—III. Handb. Laubholz. II. 777, fig. 4871-m, 488s-u (1911); in Sargent, Pl. Wilson. I. 297 (1912).

SOUTHWESTERN KANSU. Lower Tebbu country: arid slopes of Mayaku, alt. 2300 m., no. 14793, Sept. 8, 1926 (shrub 3-4.5 m., with long flexible rambling branches).

I refer Rock's no. 14793 with some hesitation to *S. Potanini* since its leaves are nearly glabrous except the puberulous impressed midrib above and the pilose midrib beneath, also the veinlets are very sparingly pilose and the petioles are short-pilose. In the dense pubescence of the branchlets, the inflorescence, calyx and winter-buds and in its general habit and the shape of the leaves which are up to 7 cm. long it agrees with *S. Potanini* Schneider. Potanin collected this species near Tanchang southeast of Minchow while Rock's specimen comes from where the Mayaku joins the Peshwekiang, a point approximately 50 miles distant from Tanchang.

Syringa oblata Lindl. var. *Giraldii* Rehder in Jour. Arnold Arb. vii. 84 (1926).

Syringa Giraldi Lemoine, Cat. no. 157, p. 35 (1904); no. 160, p. 30 (1905).—Bellair in Rev. Hort. 1909, p. 335, fig. 135-137.

Syringa affinis var. *Giraldi* Schneider, Ill. Handb. Laubholzk. ii. 774 (1911).

SOUTHWESTERN KANSU. Tao River basin: Choni, lamasery alt. 2600 m., no. 12158, June 1925 (shrub 4.5 m., spreading; flowers rich lavender). Lower Tebbu country: dry open scrub in Wantsang valley, also in dry gorges of Peshwekiang, alt. 2000 m., no. 14685, Sept. 1, 1926 (tree 3 m.; leaf thick, coriaceous); arid slopes of Peshwekiang, alt. 2000 m., no. 14687, Sept. 1, 1926 (shrub 2-3 m.; trunk black; leaf dark green); dry gorges of Chulungapu below Wantsang, alt. 1825-2000 m., no. 15036, Sept.-Oct. 1926 (tree 4.5 m.); dry shale slopes of Mayaku, below Nyipa, alt. 2450 m., nos. 15058 and 15063, Sept.-Oct. 1926 (tree 15 m.).

This variety had been collected before in Kansu by R. C. Ching, (Wulsin Exped. no. 51). Rock's no. 14687 differs in its small ellipsoid scarcely acuminate fruit about 8 mm. long and 5 mm. across.

Syringa oblata Lindl. var. *affinis* Lingelsheim in Engler, Pflanzenr. iv.-243, pt. i-II. 88 (1920).

Syringa affinis L. Henry in Jour. Soc. Hort. France, sér. 4, ii. 731, (Monog. Hort. Lilas Ligustrina) (1901); in Rev. Hort. 1908, p. 301, fig. 112.

SOUTHWESTERN KANSU. Tao River basin: Choni, lamasery, alt. 2600 m., no. 12159, June 1925 (shrub 4.5 m., spreading; flowers white).

This is apparently a white-flowered form of the preceding variety and is known only as a cultivated plant.

Syringa pekinensis Ruprecht in Bull. Phys.-Math. Acad. St. Pétersb. xv. 371 (1857).—Decaisne in Nouv. Arch. Mus. Hist. Nat. Paris, sér. 2, ii. 43 t. 2 (Monog. *Syringa*) (1879).

Syringa amurensis var. *pekinensis* Maximowicz in Mém. Div. Sav. St. Pétersb. ix. 194 (1859).—Lingelsheim in Engler, Pflanzenr. iv.-243, pt. i-II. 94 fig. 7A (1920).

SOUTHWESTERN KANSU. Tao River basin: Shanshen Miao, alt. 2900 m., no. 13507, Oct. 1925 (tree 4.5-6 m., leaves pale, whitish beneath). Lower Tebbu country: Mayaku, alt. 2300 m., no. 14751, Sept. 5, 1926 (shrub 3-4.5 m.); Mayaku, alt. 2450 m., no. 15070, Sept.-Oct. 1926 (tree 4.5 m.).

CENTRAL KANSU. Lien hoa shan: en route to Lien hoa shan, along stream banks, alt. 2750 m., no. 12760, July 14-20, 1925 (tree 4.5 m.; flowers cream-colored, fragrant); tributary bank of Tao, north of Titao, en route to Lanchow, alt. 1300 m., no. 13227, Aug. 1925 (tree 4.5 m.); slopes, alt. 2750, no. 13506, Oct. 1925 (tree 4.5-6 m.; flowers white).

With no. 15070 is a branch about 1.5 cm. in diameter which shows the brown bark separating in thin flakes rolling back. The form usually

cultivated has close brown bark marked by prominent horizontal lenticels, but trees raised from seed collected by Purdom in northern China and received without precise locality have the bark even more markedly exfoliating with larger and thinner papery flakes very much like that of the River Birch (*Betula nigra* L.).

Jasminum humile Linnaeus, Spec. 7 (1753).—Ker in Bot. Reg. v. t. 350 (1819).—De Candolle, Prodr. viii. 313 (1844).—Rehder in Sargent, Pl. Wilson. II. 614 (1916).

SOUTHWESTERN KANSU. Lower Tebbu country: out-skirts of forests along stream in Wantsang valley, alt. 2125–2250 m., no. 14653, Aug. 31, 1926 (shrub about 1.5 m.); dry arid slopes with Oaks in Nyibaku, alt. 2100 m., no. 14797, Sept. 9, 1926 (shrub about 1.5 m.; flowers rich yellow); gorge of Chulungapu, dry slopes with Koelreuteria, alt. 2000 m., no. 15035, Sept.–Oct. 1926 (shrub about 1.5 m.; flowers yellow; fruit black).

The calyx-teeth of the specimens cited above are longer and slenderer than in typical *J. humile*, but otherwise Rock's specimens do not differ. No species of *Jasminum* seems to have been recorded from Kansu before.

LOGANIACEAE

Determined by A. REHDER

Buddleia albiflora Hemsley in Jour. Linn. Soc. xxvi. 118 (Ind. Fl. Sin.) (1889).—Schneider, Ill. Handb. Laubholz. II. 845, fig. 430d (1912).

Buddleia Hemsleyana Koehne in Gartenfl. LII. 170 (1903).

SOUTHWESTERN KANSU. Lower Tebbu country: along banks of stream, Wantsang forest, alt. 2125 m., no. 14675, Sept. 1, 1926 (shrub 1.5–2 m.); in Abies forests and in small clearings, alt. 3050 m., no. 14773, Sept. 7, 1926 (plant 0.6–1 m.; flowers lavender); grassy slopes of lateral valleys in Wantsang valley, alt. 2750 m., no. 14819 (shrub 1.75–2 m.); open grassy slopes of Wantsang ku, alt. 2900 m., no. 15012, Oct. 1926 (shrub 2–3 m.); Mayaku near Zhega, alt. 2600 m., no. 15071, Sept.–Oct. 1926 (plant about 1.5 m.).

This species does not seem to have been recorded from Kansu before.

Buddleia officinalis Maximowicz in Bull. Acad. Sci. St. Pétersb. xxvi. 496 (1880); in Mém. Biol. x. 675 (1880).—C. H. Wright in Bot. Mag. cxxxvii. t. 8401 (1911).

WESTERN SZECHUAN: mountains of Ching chuan, along banks of streams and hillsides, no. 12051, April 1925 (shrub 1.75–2 m.; flowers pinkish lavender).

Buddleia nana W. W. Smith in Not. Bot. Gard. Edinb. viii. 126 (1913).

WESTERN SZECHUAN: north of Kiang yu near Kao chuan pa and dry rocky cliff of Fu kiang, no. 12017, March 1925 (pendent shrub; flowers pale lavender, very handsome); same locality and date, no. 12018 (flowers white); north of Kiang yu, rocky cliffs along Fu kiang, nos. 12029 and 12031, March 1925 (shrub 0.6–7 m.; flowers pale lavender); below Ching chuan, on rocky banks, no. 12034, March 1925 (bush 0.6–1 m.; flowers pale lavender).

The specimens differ according to the descriptions from typical *B. nana* in the larger corolla lobes which measure about 5 mm. in diam., but I think they are referable to this species rather than to *B. brachystachya* Diels which has the leaves

glabrate above and still smaller corolla-lobes. No. 12018 is said to have white flowers, but in the dried specimens they look exactly like those of no. 12017; these two specimens have small often obtusish leaves, white-tomentose beneath and occasionally with a few minute teeth, while the leaves of nos. 12029 and 12031 are larger, up to 4.5 cm. long, mostly acutish and the tomentum is slightly fulvous. Of *B. brachystachya* I have seen no specimen, and of *B. nana* only Forrest's no. 13645 received under this name from Edinburgh.

Buddleia alternifolia Maximowicz in Bull. Acad. Sci. St. Pétersb. xxvi. 494 (1880); in Mém. Biol. x. 67 (1880).—Stapf in Bot. Mag. cli. t. 9085 (1926).

CENTRAL KANSU. Lien ho a sh an: en route to Lien ho a sh an, along stream banks, alt. 2750 m., no. 12754, July 14–20, 1925 (shrub 2–2.25 m.; flowers purplish red, fragrant; leaves whitish beneath); lower slopes, alt. 2750–3050 m., no. 13617, Sept.–Oct. 1925 (shrub about 1.5 m.; leaves white beneath; flowers purple).

ASCLEPIADACEAE

Determined by A. REHDER

Periploca calophylla Falconer in Proc. Linn. Soc. i. 115 (1842); in Ann. Mag. Nat. Hist. viii. 449 (1842).—Hooker f., Fl. Brit. Ind. iv. 12 (1883).

Streptocaulon calophyllum Wight, Contrib. Bot. Ind. 65 (1834); Ill. Ind. Bot. ii. 230, t. 182, fig. 1 (1850).

SOUTHERN KANSU: beyond Pikou on bank of Wen hsien ho, no. 12080, April 1925 (climber, forming clumps over shrubs, 1–1.6 m.; flowers green).

WESTERN SZECHUAN: along the Fu kiang, on rocky cliffs and grassy banks, no. 12036, April 1925 (woody climber; flowers green).

The genus *Periploca* has apparently not yet been recorded from Kansu.

VERBENACEAE

Determined by A. REHDER

Caryopteris incana Miquel in Ann. Mus. Bot. Lugd.-Bat. ii. 97 (1866); Prol. Fl. Jap. 29 (1866).—Maximowicz in Bull. Acad. Sci. St. Pétersb. xxxi. 87 (1866); Mém. Biol. xii. 523 (1886).

Caryopteris Mastacanthus Schauer in De Candolle, Prodr. xi. 625 (1847).—Hooker f. in Bot. Mag. clii. t. 6799 (1885).

SOUTHWESTERN KANSU. Tao River basin: along stream between Taochow and Kan ku, on loess slopes, alt. 2450 m., no. 13208, Aug. 1925 (often a shrub 0.6–1 m.; flowers blue; common in Tao and Yellow River valley).

CENTRAL KANSU. Lien ho a sh an: along stream of Ha kou, alt. 2750 m., no. 12765, July 14–20, 1925 (bush 0.25–50 m.; flowers lavender).

This species had been collected before by Wm. Purdom in the Lao chow district.

LABIATAE

Determined by A. REHDER

Plectranthus discolor Dunn in Not. Bot. Gard. Edinb. viii. 155 (1913); vi. 140 (1915).—Rehder in Sargent, Pl. Wilson. iii. 384 (1916).

SOUTHWESTERN KANSU. Lower Tebbu country: on rocky cliffs of Peshwekiang valley, alt. 2100 m., no. 14558, Aug. 30, 1926 (shrub 0.75–1 m.; flowers pinkish lavender).

This species had been collected previously in Kansu (J. Hers no. 2432).

SOLANACEAE

Determined by A. REHDER

Lycium chinense Miller, Gard. Dict. ed 8, no. 5 (1768).—Watson, Dendr. Brit. I. 8, t. 8 (1825).—Dunal in De Candolle, Prodr. XIII. pt. I. 510 (1852).

SOUTHWESTERN KANSU. Tao River basin: west of Choni banks of river, alt. 2600–2750 m., no. 12185, June 1925 (shrub about 1.5 m.; flowers red); along streams between Tao chow and Kan ku, alt. 2525 m., no. 13211, Aug. 1925 (shrub 1.25 m.; flowers bluish lavender); Choni district, alt. 2750 m., no. 13560, Sept.–Oct. 1925 (spiny shrub about 2.5 m.; flowers purple; fruit brick-red). Lower Tebbu country: banks of Chulungapu, Wantsang, alt. 2000 m., no. 15094, Sept. 1926 (shrub 0.75–1 m.).

WESTERN KANSU: in dry gorge between Hsining and Tankar, alt. 2750 m., no. 13257, Sept. 10, 1925 (shrub 0.75–1 m.; fruit tomato-red).

The leaves of most of Rock's specimens are rather narrow, lanceolate to linear-lanceolate, sometimes as in no. 13560 only 5 mm. wide by 3 cm. length or 5.5 cm. by 8 mm. The species had been collected before in Kansu by R. C. Ching (Wulsin Exped. no. 208).

CAPRIFOLIACEAE

Determined by A. REHDER

Viburnum fragrans Bunge in Mém. Div. Sav. Acad. Sci. St. Pétersb. II. 107 (Enum. Pl. Chin. Bor. 30) (1833).—Maximowicz in Bull. Acad. Sci. St. Pétersb. XXVI. 485 (1880); in Mém. Biol. x. 659 (1880).—Farrer, On the Eaves of the World, I. 94, 96, pl. (1917).—[Bowles] in Gard. Chron. ser. 3, LXIX. 109, fig. 48 (1921).

SOUTHWESTERN KANSU. Tao River basin: Taochow, alt. 2750 m., nos. 12141, 12142 and 12144, May 1925 (shrub 3–4.5 m.; flowers pale pink [no. 12141], deep pink [no. 12142] or white [no. 12144], fragrant).

Rock's specimens were collected in the city of Taochow apparently from cultivated plants. The species which is frequently cultivated all over northern China was found wild by Farrer south of Shiho in southern Kansu.

Viburnum erubescens Wall. var. *gracilipes* Rehder in Sargent, Pl. Wilson. I. 107 (1911).

SOUTHWESTERN KANSU. Tao River basin: Lamasery of Choni, alt. 2600 m., no. 12962, July 25, 1925 (tree 7 m. tall; fruits blackish purple).

Rock's specimen differs from typical var. *gracilipes* in the glabrous narrow-elliptic or obovate-elliptic leaves, gradually narrowed into the slender petiole which is up to 3 cm. long, and in the short panicles. It looks like a distinct form, but without a revision of the several varieties described of this apparently very variable and widely distributed species I hesitate to add a new one.

Viburnum Veitchii C. H. Wright in Gard. Chron. ser. 3, XXXIII. 257 (1903).—Rehder in Sargent, Trees & Shrubs II. 110 (1908); Man. Cult. Trees Shrubs, 801 (1927).

SOUTHWESTERN KANSU. Tao River basin: Choni, in scrub forest, outskirts of Spruce forest, alt. 2750 m., no. 12275, June 1925 (shrub 1.25 m.; flowers white).

This species had been collected before by Wm. Purdom in the Minchow district.

Viburnum buddleifolium C. H. Wright in Gard. Chron. ser. 3, XXXIII. 257 (1903).—Rehder in Sargent, Trees & Shrubs II. 110 (1908); Man. Cult. Trees Shrubs, 801 (1927).—Schneider, Ill. Handb. Laubholz. II. 659, fig. 419i (1909).

SOUTHERN KANSU: between Motzuping and Pikou, on grassy slopes and banks, no. 12068, April 1925 (shrub 1 m.); between Pikou and Kaichow, no. 12076, April 1925 (shrub 1 m.; flowers white).

Rock's no. 12076 has somewhat broader leaves, generally oblong-ovate or occasionally ovate, but otherwise the specimen agrees with typical *V. buddleifolium*. The species had not yet been recorded from Kansu, where it occurs apparently only in the warm valleys of the extreme southeastern border.

Viburnum glomeratum Maximowicz in Bull. Acad. Sci. St. Pétersb. XXVI. 483 (1880); in Mém. Biol. x. 656 (1880).—Rehder in Sargent, Trees & Shrubs II. 110 (1908).

SOUTHWESTERN KANSU. Tao River Basin: Choni, outskirts of forests, with Berberis, Lonicera etc., alt. 2600 m., no. 12165, June 1925 (shrub 1.25 m.; flowers white); Minshan range grassy banks of Kadjaku, alt. 2750 m., no. 12435, June 1925 (straggling branching shrub, 1.25–2 m.; flowers cream-colored); in Picea forests beyond Kadjaku near Lupassu, alt. 2750 m., no. 13168, August 1925 (shrub 1.75–2 m.; fruit reddish black); Tatsuto, en route to Lupassu, alt. 2750 m., no. 13518, Sept.–Oct. 1925 (shrub 2–2.75 m.; fruit black). Lower Tebbu country: Pezhu gulch, alt. 2600 m., no. 14986, Sept.–Oct. 1926 (shrub 4.5 m.; leaf dark green above, gray woolly beneath); outskirts of dry forests in Mayaku, alt. 2450 m., no. 15096, Sept. 1926 (shrub 2–2.75 m.). Upper Tebbu country: along stream of Yiwaku, Drakana, alt. 2750 m., no. 14633, Aug. 1926 (shrub 1.75–2 m.; fruit black).

Viburnum glomeratum var. **Rockii** Rehder, var. nov.

A typo recedit foliis minoribus elliptico-ovatis vel ovalibus 2-3 cm. longis et 1.3-2.2 cm. latis, rarius orbiculari-ovalibus, obtusis vel obtusiusculis, basi rotundatis vel late cuneatis, remote et saepe obsolete denticulatis, supra maturitate fere glabris vel sparse asperato-stellato-pilosis, subtus stellato-tomentosis, venis utrinque 3-5 ascendentibus et leviter arcuatis ut venulae in dentes excurrentibus, petiolis 3-5 mm. longis stellato-pubescentibus, fructu minore circiter 7 mm. longo, putamine minus compresso.

SOUTHWESTERN KANSU. Lower Tebbu country: outskirts of Wantsang ku forests, alt. 2300 m., no. 15003 (type), Sept.-Oct. 1926 (shrub 1.75-2 m.; fruit glossy black); outskirts of forests along stream in Wantsang valley, alt. 2125-2225 m., no. 14654, Aug. 31, 1926 (stiff shrub; fruit reddish black when ripe).

This new variety differs chiefly in the much smaller usually obtuse or rounded leaves with only 3-5 pairs of veins. In size and shape the leaves resemble somewhat those of *V. mongolicum* Rehder, but they differ in the dense stellate tomentum of the under side and in the veins ending directly into the teeth. No. 14654 differs somewhat from the type in the broader generally oval leaves usually rounded at apex with the veins less distinctly impressed above and in the more compressed stone.

Viburnum mongolicum Rehder in Sargent, Trees & Shrubs II. 111 (1908); Man. Cult. Trees Shrubs, 802 (1927).

Lonicera mongolica Pallas, Reise Russ. Reich. III. 721 (1771), excl. synon. Gmelin; Fl. Ross. I. 59, t. 38 (*Lonicera dauurica*) (1784).

Viburnum davuricum Pallas, Fl. Ross. II. 30 (1788).—Herder in Bull. Soc. Nat. Moscow, XXXVII. pt. 1, 200, t. 1, fig. 2 (1864).

SOUTHWESTERN KANSU. Tao River basin: Choni among rocks on banks of Tao ho river, alt. 2600 m., no. 12161, June 1925 (shrub 1.25 m., with spreading branches; flowers pale green); Tatsuto toward Lupassu, in outskirts of forest with Berberis, alt. 2675 m., no. 12463, June 1925 (shrub 1-1.75 m.; flowers green); between Tatsuto and Lupassu on banks and spreading over boulders, alt. 2625 m., no. 12480, June 1925 (shrub with rambling branches; flowers green); Poyuku, alt. 2750 m., no. 13515, Oct. 1925 (shrub 1.75 m.; leaves pale beneath; fruit black).

Viburnum betulifolium Batalin in Act. Hort. Petrop. XIII. 371 (1894).—Rehder in Sargent, Trees & Shrubs II. 99, 116, t. 147 (1908); Man. Cult. Trees Shrubs, 807 (1927).—Bean in Bot. Mag. CXLII. t. 8672 (1916).

Viburnum lobophyllum Graebner in Bot. Jahrb. XXIX. 589 (1901).—Rehder in Sargent, Trees & Shrubs. II. 101, 116, t. 148 (1908); Man. Cult. Trees Shrubs, 807 (1927).

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Wantsang, alt. 2125-2225 m., no. 14664, Aug. 31, 1926 (shrub 2-3 m.; fruit globose, red); outskirts of forests in Wantsang valley, alt.

2125 m., no. 14828, Sept. 1926 (tree 3-4.5 m.; fruit pale red); dense forests of Wantsang valley, alt. 2600 m., no. 14845, Sept. 12, 1926 (tree 5-6 m., leaf dark green); forests of Wantsang ku, alt. 2600-2900, nos. 15011 and 15013, Oct. 1926 (shrub 3-4.5 m.; fruit globose, red or pale red, in drooping panicles); in shade in forests of Wantsang, alt. 2600 m., no. 15028, Sept.-Oct. 1926 (shrub 3-4.5 m.; fruit in ample drooping panicles).

CENTRAL KANSU. Lien ho a shan; alt. 2900 m., nos. 13213 and 13473, Aug. and Oct. 1925 (shrub 1.75-2 m. or tree 4.5 m.; fruit red or pale red); central part of mountain, alt. 2750 m., no. 13221, Aug. 1925 (shrub 1.75-2 m.; fruit pale red); in forests, alt. 3000 m., no. 13476, Oct. 1925 (shrub 3 m.; fruit bright red).

With a large series of specimens before me I have been unable to find any constant characters to distinguish *V. lobophyllum* Graebn. from *V. betulifolium* Batal., as species or even as varieties. The length of the peduncle, width of the corymb and size and shape of the leaves are very variable. Some specimens, nos. 14664, 14828 and 15011, differ somewhat in their distinctly ovate leaves, always rounded or subcordate at the base, not exceeding 5 cm. in length, less coarsely serrate and of somewhat firmer texture; also the stipules are less developed, usually small or wanting entirely.

Viburnum betulifolium f. *aurantiacum* Rehder, forma nova.

A typo recedit fructu aurantiaco.—Frutex 3-4.5 m. altus, foliis plerisque late ovatis 5-7.5 cm. longis, pedunculis 1-2.5 cm. longis, corymbis 5-7.5 cm. diam.

SOUTHWESTERN KANSU. Lower Tebbu country: forests of Ngongo, west of Chulungapu, no. 14971 (type), Sept.-Oct. 1926 (shrub 2.75-4.5 m.; fruit orange, in drooping panicles); forest of Wantsang, alt. 2125-2225 m., no. 14658, Aug. 31, 1926 (shrub 2.75-3 m.; fruit yellowish red, juicy, acid, edible, in large drooping clusters).

This form differs from the type in its orange fruit and under no. 14658 the collector states that it is juicy, acid and edible; probably the yellow fruit is less bitter and astringent than the red one.

Viburnum Sargentii Koehne var. *calvescens* Rehder in Mitt. Deutsch. Dendr. Ges. XII. 125 (1903); in Sargent, Trees & Shrubs, II. 116 (1908); Man. Cult. Trees Shrubs, 810 (1927).

CENTRAL KANSU. Lien ho a shan: northern slopes, alt. 2750 m., no. 13219, Aug. 1925 (shrub or small tree 3-4 m.; fruit bright red); Shanshen Miao, alt. 2750-2900 m., nos. 13485 and 13492, Oct. 1925 (handsome shrub 3-4.5 m.; fruit orange).

The color of the fruit of nos. 13485 and 13492 is stated to be orange, while that of 13219 which is immature is said to be bright red. The color of typical *V. Sargentii* is scarlet, but there is a form with yellow fruit distinguished as f. *flavum* Rehd.

Abelia brachystemon (Diels) Herb. Edinb. in sched.

Linnaea brachystemon Diels in Not. Bot. Gard. Edinb. v. 178 (1912).

SOUTHWESTERN KANSU. Upper Tebbu country: southern slopes of Minshan, along banks of mountain streams, alt. 3250 m., nos. 12502 and 12505, June 1925 (shrub 2-3 m., with straight ridged stem and rambling branches); along bank of stream back of Drakana, alt. 3050 m., no. 14587, Aug. 1926 (shrub 1.75-2.75 m.; with brittle rambling branches).

I refer with some hesitation the numbers cited above which bear only very young flower-buds or immature fruits to *A. brachystemon* described originally from the Li kiang range in Yunnan, but they agree well in their inflorescence, sepals and leaves with that species of which I have an isotype before me except that the leaves are narrower, linear-lanceolate in nos. 12502 and 12505 and about 2-5 cm. long and 3-8 mm. wide, distinctly ciliate and very sparingly pilose above, and in no. 14587 somewhat broader and pilose along the midrib and on the veins beneath. The light brownish gray bark of the stems of which pieces about 2 cm. in diameter accompany no. 12502 is very remarkable; it is divided by deeply incised longitudinal grooves into 6 rounded corky ridges 3-4 mm. high. This peculiar structure is well developed apparently only on vigorous shoots; the lateral branches up to 3 years of age are perfectly terete, but on branches 4 or perhaps sometimes only 3 years old the six grooves though rather shallow can be distinguished and they are present in Forrest's no. 2155, the type number of *A. brachystemon*. In the closely related *A. Zanderi* (Graebn.) Rehd. of which there are growing in this Arboretum shrubs up to 2 m. tall the bark of the stems is only shallowly and more irregularly fissured into longitudinal ridges.

Lonicera syringantha Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiv. 49 (1877); in Mém. Biol. x. 77 (1877).—Wolf in Gartenfl. xli. 564, fig. 115, 116 (1892).—Rehder in Rep. Missouri Bot. Gard. xiv. 46 (Syn. Gen. *Lonicera*) (1903); in Schneider, Ill. Handb. Laubholz. II. 685, fig. 736m., 437g (1911); Man. Cult. Trees Shrubs, 822 (1927).—C. H. Wright in Bot. Mag. cxxx. t. 7989 (1904).

SOUTHWESTERN KANSU. Tao River basin: along Tao River and its tributaries, Choni, alt. 2600 m., no. 12236, June 1925 (shrub 1-1.75 m.; flowers lavender, fragrant); on banks of river, no. 12270, June 1925 (shrub 1-1.25 m.; flowers pinkish purple, fragrant); grassy banks of river, no. 12279, June 1925 (shrub 0.75-1 m.; flowers pinkish); Choni, no. 12283, June 1925 (shrub 0.75 m.; leaves smaller; flowers lavender pink); Tao ho watershed, Choni, in river valley, on scrub-covered hillsides, alt. 2625 m., no. 12297, June 1925 (shrub 1-1.5 m.; flowers pinkish lavender, fragrant); beyond Adjün, forest of Shiao ku, no. 12804, July 1925 (shrub 1-1.75 m.; flowers pink, erect on horizontal branches); slopes of Maerhku valley, in Willow and Spruce forests, alt. 3050 m., no. 12949, July 1925 (shrub 1-1.25 m.; leaves glaucous beneath;

flowers pale pink, fragrant); in meadows between Choni and Kadjaku, very common, alt. 2600 m., no. 13176, Aug. 1925 (fruit tomato-red); Tayaku, east Tebbu land, alt. 2900 m., no. 13550, Oct. 1925 (shrub 1-1.75 m.; fruit brick red to scarlet).

CENTRAL KANSU: en route to Lien hoa shan, from Choni via Taochow, on grassy slopes, no. 12669, July 1925 (shrub 1 m.; fruit orange).

EASTERN TIBET. Radja and Yellow River gorges: among rocks and on grassy slopes, northern bank of Yellow River at Radja, alt. 3050 m., no. 14014, May 1926 (shrub 1.25-1.75 m.; flowers pinkish lavender, fragrant); along stream bed and outskirts of Spruce forest in Dachso canyon, north of Radja, alt. 3200 m., no. 14074, June 2, 1926 (shrub 1.25 m.; flowers pinkish). Jupar Range: gravelly slopes, with Willows, alt. 3200 m., no. 14289, June 1926 (shrub 1.75-2 m.; flowers pink). Kokonor region: along stream bed, Koko gorge, no. 13276, Sept. 1925 (shrub 1.75-2 m.; fruit scarlet); rocky bluffs along streams of gorge; north barrier range of Kokonor, no. 13298, Oct. 1925 (shrub 1-1.25 m.; fruit in sessile clusters, ovoid, red); below Kokonor pass, Lalaku, alt. 3050 m., no. 13365, Sept. 1925 (shrub 0.75-1 m.; fruit red).

Some specimens as nos. 12283, 12804, 13176, 13298, 13365, 13550 and 14074 approach in their smaller and narrower leaves, smaller sessile or nearly sessile flowers and fruits var. *minor* Maxim. (l.c.), but they are of upright habit, usually 1 m. or more tall, and not depressed.

Lonicera thibetica Bureau & Franchet, Jour. de Bot. v. 48 (1891).—Rehder in Sargent, Trees & Shrubs i. 89, t. 45 (1903); in Rep. Missouri Bot. Gard. xiv. 45 (Syn. Gen. *Lonic.*) (1903); in Schneider, Ill. Handb. Laubholz. ii. 684, fig. 436h-i, 437 e (1911); Man. Cult. Trees Shrubs, 822 (1927).

SOUTHWESTERN KANSU. Tao River basin: summit of Mt. Lissedzadza, with Caragana, Rhododendron etc., alt. 3800 m., nos. 12595 and 12598, July 1925 (prostrate shrub; leaves pale; flowers purplish pink, slightly fragrant); Kuang ke shan, alt. 3800 m., no. 13583, Sept.-Oct. 1925 (prostrate shrub, 30 cm. high; fruit orange); among boulders on Mt. Kuangke, alt. 3650 m., no. 14639, Aug. 25, 1926 (prostrate shrub; fruit red).

EASTERN TIBET. Radja and Yellow River gorges: high pass of Relung nira, alt. 3900 m., no. 14052, May 31, 1926 (prostrate shrub; flowers pink, very fragrant). Alpine region between Radja and Jupar range: alpine meadows of Wajo la, alt. 4350 m., no. 14156, June 1926 (prostrate shrub). Jupar valley: alt. 3650 m., no. 14342, June 1926, (prostrate or tussock forming shrub; flowers pinkish lavender, fragrant).

In no. 13583 the leaves toward the end of the branchlets are glabrescent or even glabrous; in no. 14639 the upper leaves and the upper part of the branchlets are quite glabrous, while the lower part of the branchlets is

only rather thinly pubescent and there is only a scattered woolly pubescence on the under side of the lower leaves. Thus the latter number seems to form a transition to *L. syringantha* Maxim.; its leaves are larger and broader than in typical *L. thibetica* and resemble in shape those of *L. syringantha* var. *Wolfi* Rehd.

Lonicera szechuanica Batalin in Act. Hort. Petrop. xiv. 172 (1895).—Rehder in Rep. Missouri Bot. Gard. xiv. 59, pl. 8 (Syn. Gen. *Lonicera*) (1903); in Schneider, Ill. Handb. Laubholz. II. 690, fig. 439 h-i, 440 g (1911).

SOUTHWESTERN KANSU. Tao River basin: Kadjaku valley near Tatzuto in forests of *Malus*, *Pyrus*, *Betula* with *Berberis* etc., alt. 2700 m., no. 13130, Aug. 1925 (shrub about 1.5 m.; branching horizontally); Kadjaku valley, west Tebbu land, no. 13592, Sept.-Oct. 1925 (shrub 1-1.25 m.; fruit pale orange, on short peduncles). Lower Tebbu country: in *Abies* forest, bank of Wantsang gomba, alt. 3050 m., no. 14810, Sept. 1926 (shrub 1.75-2 m., branches spreading horizontally; fruit globose, red). Upper Tebbu country: Tebbu road, alt. 3350 m., no. 13112, Aug. 1925 (shrub about 1.5 m., branches horizontal; fruit red).

Lonicera tangutica Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiv. 41 (1877); in Mém. Biol. x. 75 (1877).—Wolf in Gartenfl. xl. 580, fig. 104, 105 (1891).—Rehder in Rep. Missouri Bot. Gard. xiv. 59 (Syn. Gen. *Lonicera*) (1903); in Schneider, Ill. Handb. Laubholz. II. 690, fig. 439 m-o, 440 i (1911); Man. Cult. Trees Shrubs, 823 (1927).

SOUTHEASTERN KANSU. Tao River basin: west of Choni, in alpine meadows, no. 12349, June 1925 (shrub about 1.5 m.; flowers pale pink to white); common in Spruce forests, alt. 2625-3050 m., no. 12466, June 1925 (shrub 1.5 m., branches horizontally spreading; flowers pinkish white, drooping). Lower Tebbu country: forests of Wantsang, alt. 2450 m., no. 14708, Sept. 3, 1926 (shrub 1.75-2 m.; fruit red, on long drooping pedicels); forests of *Abies* in upper Mayaku, alt. 3000 m., no. 14874, Sept. 16, 1926 (shrub 2-3 m.; fruit globose, deep carmine to blackish red, on slender pedicels). Upper Tebbu country: Spruce forest, among boulders, southern slopes of Minshan, alt. 2925 m., no. 12532, June 1925 (shrub 1.25-2 m., with horizontally spreading branches; flowers pale yellow-pink).

Lonicera tangutica var. *glabra* Batalin in Act. Hort. Petrop. xiv. 171 (1895).

SOUTHWESTERN KANSU. Tao River basin: near camp beyond Tatzuto, Kadjaku valley, no. 13134, July 1925 (shrub 1.5 m.; flowers long, tubular, whitish pink); Maerhku valley, alt. 2900 m., no. 13580, Sept.-Oct. 1925 (shrub 1.25 m.; fruit globose, red, on slender peduncles). Upper Tebbu country: in limestone gorge and along stream, Drakana, alt. 3350 m., no. 14596, Aug. 1926 (shrub 2-2.75 m.; fruit red on long pedicels).

This variety which I had previously referred to *L. szechuanica* Batal. differs from it chiefly in its slender pedicels as long as or exceeding the leaves and in the longer generally oblong-ovate leaves. Nos. 13134 and 13580 have the leaves sparingly ciliate, but glabrous on the upper surface.

Lonicera aemulans Rehder in Rep. Missouri Bot. Gard. xiv. 59, t. 2, fig. 10, 11 (Syn. Gen. Lonic.) (1903).

SOUTHWESTERN KANSU. Tao River basin: Choni, in valley, alt. 2600 m., no. 12289, June 1925 (shrub 1-1.25 m.; flowers purplish [in bud]); Tao ho watershed, Choni, outskirts of forests, alt. 2750 m., no. 12291, June 1925 (shrub 1 m.; flowers greenish in bud); along Tao ho river bank, alt. 2600 m., no. 12299, June 1925 (shrub 1.5 m.; flowers rich yellow).

The corolla is somewhat longer than in the type specimen, up to 13 mm. long, and the bractlets are usually slightly leafy.

Lonicera saccata Rehder in Sargent, Trees & Shrubs i. 39, t. 20 (1902); in Rep. Missouri Bot. Gard. xiv. 60 (Syn. Gen. Lonic.) (1903); in Schneider, Ill. Handb. Laubholzk. II. 690, fig. 439 p-r, 440 k (1911); Man. Cult. Trees Shrubs, 823 (1927).

SOUTHWESTERN KANSU. Lower Tebbu country: dense Abies forest, alt. 3050 m., no. 14783, Sept. 8, 1926 (shrub 1.75-2 m., branches horizontal; fruit globose, red, on long drooping peduncles).

The pubescence on the under side of the leaves is mostly confined to the middle, toward the margin the leaves are glabrescent.

Lonicera microphylla Willdenow apud Roemer & Schultes, Syst. Veg. v. 258 (1819).—Ledebour, Ic. Pl. Fl. Ross. III. 8, t. 213 (1831).—Rehder in Rep. Missouri Bot. Gard. xiv. 61 (Syn. Gen. Lonic.) (1903); in Schneider, Ill. Handb. Laubholzk. II. 691, fig. 440 l, 441 a-c (1911); Man. Cult. Trees Shrubs, 824 (1927).

SOUTHWESTERN KANSU. Tao River basin: northern bank, between Choni and Kadjaku, alt. 2625 m., no. 12457, June 1925 (shrub 1.25-2 m.; flowers yellow).

EASTERN TIBET. Ba valley: gravelly slopes, alt. 3200 m., no. 14266, June 1926 (globose shrub, 1.75-2.75 m.; flowers small, yellow). Radja and Yellow River gorges: among rocks in dry ravines near Radja, alt. 3200 m., no. 13938, May 27, 1926 (shrub with globose crown; flowers pale yellow); near Radja, alt. 3050, no. 13949, May 26, 1926 (shrub 1.5 m.; flowers yellow); rocky bluffs above Dachso canyon, north of Radja, alt. 3350 m., no. 14061, June 1, 1926 (compact globose shrub 1.5 m.); three days north of Radja, alt. 3350 m., June 3, 1926 (shrub 1.25 m.).

Lonicera coerulea L. var. *edulis* Regel, Russk. Dendr. 144 (1873).—Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiv. 48 (1877); in Mél.

Biol. x. 75 (1877).—Rehder in Rep. Missouri Bot. Gard. xiv. 72 (Syn. Gen. Lonic.) (1903); Man. Cult. Trees Shrubs, 825 (1927).

Lonicera coerulea γ Turczaninow in Bull. Soc. Nat. Moscou, xviii. 306 (1845).—Herder in Bull. Soc. Nat. Moscou, xxvii. pt. I. 205, t. 3, fig. 1-2a (1864).

SOUTHWESTERN KANSU. Tao River basin: Minshan range, alpine meadow of Kadjaku, alt. 3200 m., no. 12372, June 1925 (shrub 1-1.25 m.; flowers yellowish green); opposite Choni, alt. 2750 m., no. 12893, July 1925 (shrub 2.75-3 m.; with scandent branches; fruits horn-shaped, pruinose); Maerhku, alt. 2750-3050 m., nos. 12955 and 13551, July 25 and Oct. 1925 (shrub 1.75-4.5 m., bark shaggy cinnamon-brown; fruit spindle- or cornucopiae-shaped, pruinose, edible).

This variety had been collected before in Kansu on the Tao River by Wm. Purdom (no. 500).

Lonicera Ferdinandi Franchet in Nouv. Arch. Mus. Paris, sér. 2, vi. 31, t. 12, fig. A (Pl. David. i. 151) (1884).—Rehder in Rep. Missouri Bot. Gard. xiv. 78 (Syn. Gen. Lonic.) (1903); in Schneider, Handb. Ill. Laubholz. II. 696, fig. 444a (1911); Man. Cult. Trees Shrubs, 826 (1927).

SOUTHWESTERN KANSU. Tao River basin: on rocky slopes, western banks of river, below Choni, on road to Poyü, alt. 2450 m., no. 12800, June-July 1925 (shrub 1-1.25 m.; flowers yellow); Tatsuto, Lupassu, alt. 2750 m., no. 13519, Sept.-Oct. 1925 (shrub 1.75-2.75 m., branches horizontal; fruit red); near Maerhku, alt. 2600 m., no. 14906, Sept. 10, 1926 (shrub or small tree 3-4.5 m.; fruit red). Lower Tebbu country: arid slopes of Niayaku, with Oaks, etc., near Nyipa, alt. 2300 m., no. 14794, Sept. 9, 1926 (tree with long shaggy pale brown bark, branches bending gracefully; leaf dark green); Pezhu gulch, dry slopes, alt. 2750 m., nos. 14954 and 14960, Oct. 1926 (shrub 3-5.5 m.; bark black; fruit crimson or scarlet, globose); dry shale slopes of Mayaku, alt. 2450 m., no. 15078, Sept.-Oct. 1926 (tree 4.5-5.5 m., bark black, shaggy; fruit globose, red). Upper Tebbu country: gravelly slopes of Drotsuku valley, Peshwekiang, below Tsaruku, no. 14580, Aug. 28, 1926 (shrub 1.75-2 m.).

This is apparently a variable species. In the specimens from the Tao River basin the branchlets are more or less setose, but the corolla of the only flowering specimen (no. 12800) lacks the reflexed setae of the typical form; the branchlets of the specimens from the lower Tebbu country are pubescent, but not setose, while in that from the upper Tebbu country they are rather densely pilose. The specimens are more or less intermediate between the type and var. *leycesterioides* (Graebn.) Zabel which has nearly glabrous and rather slender branchlets.

Lonicera Standishii Carr. var. *lancifolia* Rehder in Rep. Missouri Bot. Gard. xiv. 82 (Syn. Gen. Lonic.) (1903) as forma; in Schneider, Ill. Handb. Laubholz. II. 698, fig. 444e (1911); Man. Cult. Trees Shrubs, 826 (1927).

Lonicera pseudoproterantha Pampanini in Nuov. Giorn. Bot. Ital. n. ser. xvii. 723, fig. 18 (1910).—Morel in Rev. Hort. 1916, p. 24, fig. 5.

WESTERN SZECHUAN: Mountains of Ching chuan, alt. 1850 m., no. 12049, April 1925 (shrub 1-1.25 m.; flowers pinkish).

Lonicera hispida Pallas apud Roemer & Schultes, Syst. Veg. v. 258 (1819).—Ledebour, Icon. Pl. Fl. Ross III. 7, t. 212 (1831).—Rehder in Rep. Missouri Bot. Gard. XIV. 93 (Syn. Gen. *Lonic.*) (1903); in Schneider, Ill. Handb. Laubholz. II. 700, fig. 445 i-m, 446 d (1911); Man. Cult. Trees Shrubs, 827 (1927).

SOUTHWESTERN KANSU. Tao River basin: slopes of river watershed, among Willows, alt. 3050 m., no. 12193, June 1925 (shrub 0.30–1 m.; flowers pale lemon-yellow); Tao ho watershed, Choni, outskirts of Spruce forests, or in meadows among Willows up to 3050 m., no. 12292, June 1925 (shrub 0.30–1.25 m.; flowers yellow); along Tao River in scrub, alt. 2600 m. and higher, no. 12310, June 1925 (shrub about 1.5 m.; flowers yellow): Minshan range, valley of Kadjaku, beyond Tatsuto, alt. 3050 m., no. 12425, June 1925 (shrub about 1.5 m.; flowers yellow); in Spruce forest of Tebbu country, alt. 3000 m., no. 12475, June 1925 (shrub 0.5–1 m.; flowers yellow); mountains west of Adjuan, in shady places under Birches and Willows, alt. 3350 m., no. 12631, July 6–10, 1925 (shrub 0.5–1 m.; flowers pale yellow); forest around Choni, alt. 2600–2750 m., no. 12890, July 1925 (shrub 1.75–2 m.; fruit orange-red to brick-red); Maerhku valley, east Tebbu land, alt. 2750 m., no. 13584, Sept.–Oct. 1925 (shrub about 1 m.; leaves coriaceous; fruit pyriform, orange). Upper Tebbu country: trail to Kuang kei, alt. 3700 m., no. 13090, July–Aug. 1925 (shrub 0.5 m.; flowers pale yellow); Tebbu road from Mt. Kuang kei, alt. 3350 m., no. 13107, July–Aug. 1925 (shrub 1–1.25 m.; fruit orange-red); alt. 3350, no. 13114, Aug. 1925 (shrub about 1.5 m.; fruit deep orange).

CENTRAL KANSU. Lien ho a shan: scrub forests, alt. 2900 m., no. 12681, July 14–20, 1925 (shrub 0.5–1 m.; fruit yellow).

EASTERN TIBET: Radja and Yellow River gorges: Lungmar pass, 15 li south of East Radja, alt. 3350 m., no. 14007, May 1926 (shrub 1–1.25 m.; flowers yellow); near mouth of Dachso canyon, north of Radja, in Birch and Spruce forest, alt. 3100 m., no. 14056, June 1–2, 1926 (shrub 1 m.; flowers pale yellow); along stream bed and outskirts of Spruce forests in Dachso canyon, north of Radja, alt. 3200 m., no. 14076, June 2, 1926 (shrub 1.25 m.; flowers yellow). J u p a r R a n g e: upper Jupar valley, on rocky slope, alt. 3650 m., no. 14293, June 1926 (shrub about 1.5 m.; flowers yellow); banks of upper Jupar stream, alt. 3650 m., no. 14351, June 1926 (shrub 3–4.5 m.).

The specimens show some variation in the pubescence of the leaves and branchlets and in the size of the flowers; those from the upper Tebbu country have the leaves glabrous above and the branchlets either quite glabrous as in nos. 13107 and 13114 or slightly setose as in no. 13090, and more or less bloomy, as are the bracts and peduncles, while the other specimens have the leaves setose above and setose branchlets.

Lonicera infundibulum Franch. var. *Rockii* Rehder, var. nov.

A typo recedit praecique ovarii et sepalis satis dense pilosis et sparse glandulosis et bracteis extus pubescentibus.

WESTERN SZECHUAN: mountains of Ching chuan, forests along stream, alt. 1825 m., no. 12050, April 1925 (shrub 1.25 m.; flowers white with pinkish tinge).

According to the material before me which consists of flowering branches with very young scarcely half-grown leaves Rock's specimen seems to differ from typical *L. infundibulum* Franch. (*L. praecox* Ktze., not K. Koch) only in the pubescent ovary, calyx and bracts. The style is glabrous, while in the type of *L. praecox* it is pilose below the middle; nothing is said of the pubescence of the style by Franchet.

Lonicera heteroloba Batalin in Act. Hort. Petrop. xii. 174 (1892).—Rehder in Rep. Missouri Bot. Gard. xiv. 109, t. 15 (Syn. Gen. Lonic.) (1903).

SOUTHWESTERN KANSU. Tao River basin: Choni, outskirts of forest, alt. 2600 m., no. 12162, June 1925 (shrub 1.75–2 m.; flowers deep red, pendent); along river bank, alt. 2600 m., no. 12300, June 1925 (shrub 2–2.75 m.; flowers dark red); Minshan range; shady places among Willows at Tatsuto, alt. 2750 m., no. 12437, June 1925 (shrub 2–2.75 m.; flowers deep red, drooping); Kadjaku valley, near Tatsuto, in forests of Malus, Pyrus, Betula, with Berberis, alt. 2700 m., nos. 12467, 13129 and 13585, June, Aug. and Sept.–Oct. 1925 (shrub 1.75–3 m.; flowers dark red; fruit dark red, globose, on long peduncles); Maerhku, Choni district, no. 13509, Oct. 1925 (shrub 1.75–2.75 m.; fruit red); Mt. Kuang ke in scrub and meadows, alt. 3650 m., no. 13556, Sept.–Oct. 1925 (shrub 2–2.75 m.; leaves pale; fruit globose, orange on slender peduncles); Poyuku, near Choni, alt. 2750 m., no. 14890, Aug.–Sept. 1926 (shrub 2–2.75 m.; fruit globose, red, on erect peduncles).

CENTRAL KANSU. Lien ho a shan: along stream in Ha kou valley, alt. 2900 m., no. 12792 (shrub 1.25–2 m.).

In no. 13129 some of the lower leaves have a few rounded lobes near the base, while in the other specimens the leaves are quite entire or occasionally slightly sinuate. Nos. 12792 and 13556 differ in their smaller and narrower glabrescent leaves from the typical form and resemble somewhat *L. heterophylla* var. *Karelini* (Bge.) Rehd.; the leaves are lanceolate or narrow-lanceolate, 2.5–5 cm. long and 6–12 mm. broad, ciliate, sparingly pilose above and glabrous beneath. The specimens represent apparently a very distinct form, but without flowers their relationship remains doubtful.

Lonicera nervosa Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiv. 39 (1877); in Mém. Biol. x. 62 (1877).—Rehder in Rep. Missouri Bot. Gard. xiv. 121, t. 16 (Syn. Gen. Lonic.) (1903); in Schneider, Ill. Handb. Laubholzk. ii. 714, fig. 452 m-o, 453 b (1911); Man. Cult. Trees Shrubs, 831 (1927).

SOUTHWESTERN KANSU. Tao River basin: Choni, forests of Spruce and Willows, alt. 2750–3050 m., no. 12571, July 1925 (shrub about 1.5 m., branches horizontal; flowers upright, pink); valley of Hsiao ku, outskirts of Willow and Birch forest, alt. 2925 m., no. 12638, July 6–10, 1925 (shrub 1–1.25 m.; flowers pink); Maerhku valley, Picea

forest, alt. 2800 m., no. 13582, Sept.-Oct. 1925 (shrub 1.75 m.; fruit globose, black). Lower Tebbu country: dense forest, between Hera and limestone gorge Dayaya, alt. 3050 m., no. 14781, Sept. 8, 1926 (shrub 2-2.75 m.; leaf dark green; fruit bluish black); forests of Abies in upper Mayaku, alt. 3000 m., no. 14876, Sept. 16, 1926 (shrub 1.25-3 m., branches horizontal; fruit black, on erect short pedicels); forests of Ngongo, alt. 3050 m., no. 14977, Sept.-Oct. 1926 (shrub 1.75-2.75 m.; fruit globose, black). Upper Tebbu country: along stream bed, Drakana, alt. 3050 m., no. 14593, Aug. 1926 (shrub about 1.5 m.; fruit black).

WESTERN KANSU: forests of Komang ssu, alt. 3050 m., no. 13288, Oct. 1925 (shrub 1-1.25 m.; fruit globose, black).

Lonicera chrysantha Turcz. var. *longipes* Maximowicz in Bull. Acad. Sci. St. Pétersb. xxiv. 44 (1877); in Mém. Biol. x. 68 (1877).—Rehder in Rep. Missouri Bot. Gard. xiv. 140 (Syn. Gen. Lonic.) (1903).

SOUTHWESTERN KANSU. Tao River basin: Tao River valley, alt. 2600-2750 m., no. 12348, June 1925 (shrub about 1.5 m.; flowers green [in bud]); Choni, forests of Spruce and Willows, alt. 2750-3050 m., no. 12572, July 1925 (shrub about 1.5 m.; flowers yellow); banks of Tao River, near Choni, alt. 2500-2700 m., nos. 12858, 13512 and 13516, July, Sept. and Oct. 1925 (shrub 1.25-2.75 m.; flowers-orange yellow; fruit red); in Picea forests beyond Kadjaku, near Lupassu, alt. 2750 m., no. 13169, Aug. 1925 (shrub 1.75-2 m.; fruit red); Kadjaku valley, near Tatsuto, outskirts of Pine forest and in forests of Malus, Pyrus, Betula, with Berberis etc., alt. 2700-2800 m., nos. 12479, 13131, 13520 and 13578, June, July and Sept.-Oct. 1925 (shrub 1.75-2.75 m.; leaves dark; flowers on long drooping pedicels; fruit globose, red). Lower Tebbu country: forests of Wantsang valley, alt. 2250-2325 m., nos. 14674 and 14717, Sept. 1 and 3, 1926 (shrub 2-3 m., with horizontally spreading branches; fruit red); Wantsang ku, alt. 2600 m., no. 15022, Sept.-Oct. 1926 (shrub 1.75-2 m., with flat spreading branches; fruit red); along stream at Tsaoshi ku, alt. 2225 m., no. 14736, Sept. 2, 1926 (fruit on long erect peduncles, red); forests of Chingolo, above Pezhu, alt. 2600 m., no. 14993, Sept.-Oct. 1926 (shrub 1.75-2 m.; fruit yellowish red, on long erect peduncles).

Lonicera deflexicalyx Batalin in Act. Hort. Petrop. xii. 173 (1892).—Rehder in Rep. Missouri Bot. Gard. xiv. 142 (Syn. Gen. Lonic.) (1903); in Schneider, Ill. Handb. Laubholz. ii. 724, fig. 455 l-m, 456 o-q, (1911); Man. Cult. Trees Shrubs, 835 (1927).—Hutchinson in Bot. Mag. cxi. t. 8536 (1914).

SOUTHWESTERN KANSU. Tao River basin: Tatsuto, Kadjaku, west Tebbu land, alt. 2800 m., no. 13576, Sept.-Oct. 1925 (shrub 1.75 m.; fruit orange); Maerhku valley, east Tebbu, alt. 2900 m., no. 13588, Sept.-Oct. 1925 (shrub 1-1.75 m.; fruit orange, globose); Maerhku,

Choni, alt. 2700 m., no. 14891, Aug.-Sept., 1926 (shrub 1.75-2 m., with long horizontal branches; fruit red, globose). Lower Tebbu country: along stream bed, in forests of Tsaoshi valley, below Wantsang valley, alt. 2125 m., no. 14734, Sept. 2, 1926 (shrub 1.25 m., with spreading branches; fruit red). Upper Tebbu country: forests below outer Shimen, Tsaluku valley, alt. 3350 m., no. 13072, July-Aug. 1925 (shrub 2-2.75 m., with long scandent branches); along brook back of Drakana, Lassun gomba, alt. 3050 m., no. 14583, Aug. 1926 (shrub 1.75 m., with spreading branches; fruit tomato-red).

All the specimens cited above differ from typical *L. deflexicalyx* in the less pubescent leaves which are only pilose along the midrib and often sparingly so on the veins, and thus approach the following species. The species had been collected before in the Choni and Minchow districts, Kansu, by Wm. Purdom (nos. 1089 and 1090).

Lonicera trichosantha Bureau & Franchet in Jour. de Bot. v. 48 (1891).—Rehder in Rep. Missouri Bot. Gard. xiv. 142, t. 20 (Syn. Gen. Lonic.) (1903); in Schneider, Ill. Handb. Laubholz. ii. 724, fig. 456 r-s, 457 a-b (1911); Man. Cult. Trees Shrubs, 835 (1927).

Lonicera ovalis Batalin in Act. Hort. Petrop. xiv. 170 (1895).

SOUTHWESTERN KANSU. Tao River basin: west of Choni, between Tatsuto and Lupassu, alt. 2625 m., no. 12444, June 1925 (shrub 1-1.25 m. with horizontally spreading branches; flowers yellow); forests of Shiao ku, en route to Lissedzadza, Minshan, alt. 3000 m., no. 12814, July 1925 (shrub 1.25 m.; flowers sulphur-yellow, erect on horizontal branches); high grassy mountain beyond Tao chow, alt. 3050 m., no. 13206, Aug. 1925 (shrub 1-1.25 m., with spreading branches). Upper Tebbu country: forests below outer Shimen, Tsalaku valley, alt. 3350 m., no. 13071, July-Aug. 1925 (shrub about 1.5 m., with twining scandent branches; flowers yellowish).

This species had been collected before in Kansu by R. C. Ching (Wulsin Exped. no. 754).

(To be continued)

FOUR NEW LIGNEOUS PLANTS FROM KWANGTUNG

WOON YOUNG CHUN

Quercus Hui, sp. nov.¹

Tree to 5 m. tall, trunk to 28 cm. in diameter; bark gray, smooth; young branchlets densely yellowish or fulvous-tomentose, slender, terete, becoming glabrous, grayish black and the second and third year roughened by numerous small raised lenticels. Leaves distinctly petiolate, thin, membranous, densely whitish floccose-tomentose on the under surface at the time of unfolding, quickly glabrous excepting the base of the midrib which is densely yellowish tomentose, spathulate-cuneate or oblanceolate, usually broadest above the middle, obtuse or broadly acute at apex, narrowed at base into the petiole, margin revolute, with 3 or 4 obscure crenate-apiculate teeth on each side near the apex, upper surface lustrous pale green, glabrous, with indistinct midrib and lateral veins, lower surface whitish or gray-green, with the midrib and lateral veins distinctly elevated; with 6-8 pairs of lateral veins, diverging at an angle of about 45 degrees, joined by obscure transverse veinlets; petiole densely yellowish tomentose, about 1 cm. long; stipules linear-lanceolate, dorsally pilose, glabrous inside, about 4 mm. long. Young fruit densely tawny-tomentose, sessile, paired, terminating a densely tomentose peduncle to 8 mm. long, ovoid; styles 4, erect, glabrous or puberulous towards the base, stigma capitate, 3 mm. long. Mature fruits solitary, glabrous, dark brown, depressed-globose, 2 cm. in diameter, 1.5 cm. high, apex with a thick conical umbo about 4 mm. high, truncate at base, with a flattened circular hilum; involucre patelliform, to 4 mm. high, embracing only the base of the nut, densely yellowish tomentose, the scales wholly connate into 4 or 5 concentric zones with entire margins.

KWANGTUNG: North River region, road from Cheng-kou to Pan lin tsze, in mixed woods, *W. Y. Chun*, no. 5868, Dec. 24, 1927.—Specimens in the Sun Yatsen University, Canton and Nanking, and in the Arnold Arboretum.

¹ *Quercus Hui*, sp. nov.

Arbor ad 5 m. alta, truncus ad 28 cm. diam., cortice cinereo laevi; ramuli juveniles dense luteo- vel fulvo-tomentosi, tennes, teretes, glabrescentes, cinereo-nigri et secundo et tertio anno lenticellis multis parvis elevatis asperati. Folia distincte petiolata, tenuia, membranacea, subtus initio dense albido-floccoso-tomentosa, basi costae dense luteo-tomentosae excepta mox glabra, spathulato-cuneata vel oblanceolata, pleraque supra medium latissima, apice obtusa vel late acuta, basi in petiolum attenuata, margine revoluta, ad apicem utrinque 3 vel 4 dentibus obsoletis crenato-apiculatis instructa, supra lucida, pallide viridia, glabra, costa et venis lateralibus indistinctis, subtus albida vel cinereo-viridia, costa et venis lateralibus distincte elevatis, utrinque venis 6-8 sub angulo 45° divergentibus, venulis obsoletis transversis conjunctis; petioli dense luteo-tomentosi, circiter 4 mm. longi; stipulae linear-lanceolatae, dorso pilosae, ventre glabrae. Fructus juveniles ovoidei, dense fulvo-tomentosi, sessiles, bini pedunculo ad 8 mm. longo dense fulvo-tomentoso suffulti; styli 4, erecti, glabri vel versus basin puberuli, stigmatibus capitato 3 mm. longo. Fructus maturus solitarius, glaber, intense brunneus, depresso-globosus, 2 cm. diam., 1.5 cm. longus, apice umbone crasso conico circiter 4 mm. longo instructus, basi truncatus, hilo circulari applanato; cupula patelliformis, ad 4 mm. alta, dense luteo-tomentosa, squamis in 4 vel 5 lamellas concentricas margine integras connatis, tantum basin glandis amplectens.

Allied to *Q. Championi* Bentham, differing in the thinner leaves tomentose only along the base of the midrib beneath and in the larger depressed-globose acorn.

Named in compliment to my colleague Dr. H. H. Hu.

***Mahonia Shenii*, sp. nov.¹**

Shrub to 1-2 m. high, wholly glabrous; bark of stem dull yellowish gray, irregularly longitudinally fissured and ridged; branchlets smooth, subterete or obscurely angular, greenish brown to greenish gray-brown, sparsely shallowly fissured, lustrous. Leaves to 40 cm. long, with 1-2 pairs of leaflets, the basal pair not much smaller than the upper pair, the terminal leaflet somewhat larger; leaflets from 4-6 cm. apart, sessile, coriaceous, upper surface deep green, dull to sublustrous, lower surface much paler, whitish or yellow-green, lustrous, gradually short-acuminate or abruptly acuminate at apex, mucronate, acute at base, entire, strongly thickened, 3-5-nerved, midrib slender, slightly elevated on both surfaces, reticulations sparse, slightly distinct on the upper surface only, obscure to obsolete beneath; terminal leaflet elliptic to oblong-elliptic, symmetrical at base, 13-15 cm. long, about 6 cm. wide; lateral leaflets elliptic to ovate-lanceolate, slightly oblique at base, 8-13 cm. long, 3-5 cm. wide. Flowers not seen. Infructescences 6-8 from the axils of scarious broadly lanceolate to linear-lanceolate acuminate lustrous greenish brown bracts 1-2 cm. long; racemes about 10 cm. long, somewhat densely fruited in the upper half; pedicels 3-4 mm. long, slender, recurved; bractlets minute, ovate, obtuse or acute, concave, about 1 mm. long; fruit 1-seeded, depressed-globose, 6-7 mm. across, blackish blue, glaucous, crowned by a discoid sessile stigma; seeds obliquely oblong-ovoid, about 5 mm. high, greenish brown.

KWANGTUNG: North River region, about 20 li N. W. of Cheng-kou on the road to Pan ling tsze, west slope of shaded ravine, *W. Y. Chun*, no. 5850, Dec. 24, 1927.—Specimens in the Arnold Arboretum and Sun Yatsen University, Canton.

Mahonia Shenii is easily distinguished from all other species of the genus by its entire leaflets.

¹ ***Mahonia Shenii*, sp. nov.**

Frutex ad 1-2 m. altus, totus glaber, cortice luteo-cinereo irregulariter longitudinaliter fissis; ramuli laeves, subteretes vel obsolete angulati, viridi-brunnei ad viridi-cinereo-brunnei, lucidi, parce leviterque fissi. Folia ad 40 cm. longa, 1-2-juga, foliolis inferioribus quam superiora vix minora, terminali paullo majore; foliola sessilia, 4-6 cm. distantia, coriacea, supra intense viridia, opaca ad sublucida, subtus multo pallidiora, albida vel luteo-viridia, lucida, apice gradatim breviter acuminata vel subito acuminata, mucronata, basi acuta, margine integra, manifeste incrassata, 3-5-nervia, costa tenui utrinque leviter elevata, tantum supra leviter reticulata, subtus obsolete reticulata; foliolum terminale ellipticum ad oblongo-ellipticum, basi symmetricum, 13-15 cm. longum et circiter 6 cm. latum; foliola lateralia elliptica vel ovato-elliptica, basi leviter obliqua, 8-13 cm. longa et 3-5 cm. lata. Flores non visi. Infructescentiae 6-8 in axillis bractearum scariosarum late lanceolarum vel linear-lanceolarum acuminatarum lucidarum viridi-brunnearum 1-2 cm. longarum; racemi circiter 10 cm. longi, supra medium plus minusve dense fructiferi; pedicelli 3-4 mm. longi, tenues, recurvati; bracteolae minutae, ovatae, obtusae vel acutae, concavae, circiter 1 mm. longae; bacca 1-sperma, depresso-globosa, 6-7 mm. diam., nigro-caerulea, glauca, stigmatate discoideo sessili coronata; semina oblique oblongo-ovoidea, circiter 5 mm. longa, viridi-brunnea.

The species is dedicated to Professor P. F. Shen, M. F. (Yale), Dean of the College of Agriculture, Sun Yatsen University, Canton, through whose interest the North River expedition was made possible.

Eurya Weissiae, sp. nov.¹

Shrub to 3 m. high; bark yellowish gray, sublustrous; flowering branchlets stoutish, terete, densely hirsute with brownish or fuscous long-spreading hairs, older branchlets puberulous or subglabrous, gray or gray-brown. Leaves distichous, crowded, shortly but distinctly petiolate, sub-amplexicaul, coriaceous, oblong or elliptic-oblong, 4-6 cm. long, 1.5-3 cm. wide, biauriculate at base and in the fresh state more or less clasping the branchlet, with unequal rounded lobes, abruptly short-acuminate with an obtusish acumen, revolute, crenately glandular-denticulate from base to apex, upper surface dull green, glabrous when mature, with the midrib, veins and veinlets impressed, lower surface bright yellow green, scattered-hirsutulous and minutely punctulate or at length glabrous, the midrib strongly elevated, the lateral veins loosely but distinctly reticulate; lateral veins numerous, slender, horizontally spreading, anastomosing; petiole 2-3 mm. long, pubescent. Flowers dioecious, small, 2-3 in the axils of the leaves, more or less concealed by the leaf bases, creamy-white, shortly pedicellate; pedicels about 1 mm. long, pubescent, bibracteolate at apex; bractlets elliptic, obtuse or acute. Staminate flowers urceolate, 5 mm. long, 3 mm. wide; sepals 2 mm. long, oblong, obtuse or acute, the 3 outer ones larger, purplish, hirsute, the 2 inner ones thinner, obscurely puberulous; petals connate at base, closely imbricate, erect, narrowly oblong, rounded and slightly reflexed at apex; stamens 10, glabrous, 4 mm. long, filaments 3 times longer than the anthers; anthers apiculate; pistillode glabrous, ovoid, slightly angular, contracted at base; style short, subulate; pistillate flowers about 4 mm. high and 5 mm. across, corolla more spreading or the petals more strongly reflexed; ovary glabrous, about 4 mm. high,

¹ *Eurya Weissiae*, sp. nov.

Frutex ad 3 m. altus, cortice luteo-griseo sublucido; ramuli floriferi robusti, teretes, dense pilis brunneis vel fuscis longe patentibus hirsuti, vetustiores puberuli vel subglabri, cinerei vel cinereo-brunnei. Folia disticha, congesta, breviter sed distincte petiolata, subamplexicaulia, coriacea, oblonga vel elliptico-oblonga, 4-6 cm. longa, 1.5-3 cm. lata, basi biauriculata et in vivo plus minusve ramulos amplectentia, lobis basalibus inaequalibus rotundis, subito breviter acuminata acumine obtuso, margine revoluta, e basi ad apicem glanduloso-crenato-denticulata, supra opace viridia, sub maturitate glabra, costa et venis venulisque impressis, subtus clare luteo-viridia, sparse hirsutula et minute punctulata vel demum glabrescentia, costa manifeste elevata, venis laxe sed distincte reticulatis, venis secundariis multis tenuibus, horizontaliter patentibus anastomosantibus; petioli 2-3 mm. longi, pubescentes. Flores dioeci, parvi, 2-3 axillares, plus minusve foliorum basibus obiecti, luteo-albi, breviter pedicellata; pedicelli circiter 1 mm. longi, pubescentes, apice bibracteolati; bracteolae ellipticae, obtusae vel acutae, flores masculi urceolati, 5 mm. longi, 3 mm. lati; sepala 2 mm. longa, oblonga, obtusa vel acuta, 3 exteriores maiora purpurascencia, hirsuta, 2 interna tenuiora, obsolete puberula; petala basi connata, arcte imbricata, erecta, anguste oblonga, apice rotundata et leviter reflexa; stamina 10, glabra, 4 mm. longa, filamentis quam antherae apiculatae triplo longioribus; pistillodium glabrum, ovale, leviter angulare, basi contractum; stylo brevi subulato; flores feminei circiter 4 mm. longi et 5 mm. lati; corolla-magis patens vel petala magis reflexa; ovarium glabrum, circiter 4 mm. longum, cylindricum, sensim in stylum robustum circiter 1 mm. longum attenuatum; stigmata 3, rarius 4, patentia. Fructus (immaturus) globosus, lucidus, niger, apice apiculatus.

cylindric, gradually narrowed into a stoutish style about 1 mm. long; stigmas 3, rarely 4, spreading. Fruit (immature) globose, lustrous, black, apiculate at apex.

KWANGTUNG: North River region, Chang tung hang, Dec. 18, 1927, *W. Y. Chun*, no. 5791 (♀); Pan ling tsze, Dec. 25, 1927, no. 5791a (♂).—Specimens in the Sun Yatsen University, Canton and Nanking, and in the Arnold Arboretum.

Allied to *E. obliquifolia* Hemsley and *E. glandulosa* Merrill, differing from both in the semi-amplexicaul leaves; from the former also in the smaller, abruptly short-acuminate leaves and smaller flowers with only 10 stamens; from the latter in the unequally biauriculate base of the leaves.

This species is dedicated to Mrs. Weiss of the Berliner Mission, Shaochow fu, in appreciation of the courtesies extended to me while at the mission.

Tutcheria Greeniae, sp. nov.¹

Densely branched shrub to 3 m. high; bark gray brown; branchlets glabrous, terete, pale tawny, changing to gray-brown, finally to dark purple, finely striate. Leaves scattered, petiolate, coriaceous, oblong-lanceolate to obovate-lanceolate, obtusely acuminate at apex, cuneate at base, decurrent into the petiole, glabrous, dull yellowish green above, paler beneath, irregularly crenate-denticulate at the margin, midrib impressed above, elevated beneath; lateral veins 10–12, slender, anastomosing, loosely and somewhat obscurely reticulate, 6–13 cm. long, 3–4 cm. wide; petiole stout, flattened above, about 1 cm. long. Flowers not seen. Capsule solitary, subterminal on a slender peduncle 1.2–1.5 cm. long, elongated-ovoid, acute at apex, 3 cm. long, 2 cm. across, densely grayish silky-puberulous, dehiscent from the base upwards into 3 thinly coriaceous valves; central column slender, 3-angled, broadly clavate, to 3 cm. long and 8 mm. wide in the upper dilated part, attenuate from the middle to the base into a peduncle-like base; basal bracts sub-orbicular, obtuse at apex, truncate at base, to 9 mm. high and 12 mm. wide, densely puberulous outside, glabrous inside; seeds pale chestnut-brown, lustrous, to 1.5 cm. long.

KWANGTUNG: North River region, Pan lin tsze, in open woods, Dec.

¹ *Tutcheria Greeniae*, sp. nov.

Frutex dense ramosus ad 3 m. altus, cortice cinereo-brunneo; ramuli glabri, teretes, pallide fulvi, deinde cinereo-brunnei, demum intense purpurei, minute striati. Folia sparsa, petiolata, coriacea, oblongo-lanceolata vel obovato-lanceolata, 6–13 cm. longa et 3–4 cm. lata, obtuse acuminata, basi cuneata et in petiolum decurrentia, glabra, supra opace luteo-viridia, subtus pallidiora, irregulariter crenato-denticulata, costa supra impressa subtus elevata, venis lateralibus 10–12 tenuibus anastomosantibus, laxe vel plus minusve obsolete reticulata; petioli crassi, supra plani, circiter 1 cm. longi. Flores non visi. Capsula solitaria, subterminalis, pedunculo tenui 1.2–1.5 cm. longo suffulta, elongato-ovoides, apice acuta, 3 cm. longa et 2 cm. lata, dense cinereo-sericeo-puberula, valvis 3 tenuiter coriaceis dehiscens; columna centralis 3-angularis, late clavata, ad 3 cm. longa, in parte dilatata superiore 8 mm. lata, e medio in basin stipitatum attenuata; bractee basales suborbiculares, apice obtusae, basi truncatae, ad 9 mm. longae et 12 mm. latae, extus dense puberulae, intus glabrae; semina pallide castaneo-brunnea, lucida, ad 1.5 cm. longa.

25, 1927, *W. Y. Chun*, no. 5937.—Specimens in the Sun Yatsen University, Canton, and in the Arnold Arboretum.

Allied to *T. spectabilis* Dunn, differing in its smaller leaves, much smaller fruit on longer slenderer peduncles with thinner, coriaceous not woody valves, and in the slender, differently shaped central column.

The genus *Tutcheria* has a peculiarly close association with the Hong-kong Botanical Garden, and I therefore take especial pleasure in naming this new species after Mrs. H. Green, the wife of the present Superintendent.

SINOJACKIA, A NEW GENUS OF STYRACACEAE FROM SOUTHEASTERN CHINA

H. H. HU

Sinojackia, gen. nov.

Arbor stellato-pilosa. Folia alterna, membranacea, calloso-serrulata, exstipulata. Flores albi, in cymos axillares dispositi, saepius penduli, rarius patentes; calycis tubus turbinatus, ovario ad medium adnatus, lobis 6-7, interdum 5, brevibus distinctis; corolla late campanulata vel subrotata, segmentis 6-7, interdum 5, basi brevissime connatis imbricatis stellato-puberulis; stamina 12-14, interdum 10, prope basin corollae 1-seriatim affixa, filamentis stellato-villosis, inferne plus minus connatis basi complanatis superne attenuatis liberis, antheris oblongis, loculis linearibus parallelis omnino adnatis stellato-puberulis, rima longitudinaliter dehiscentibus, connectivis viridibus; ovarium partim inferum, 3-4-loculare, glabrum; stylus elongatus, subulatus, stigmatе terminali vix dilatato obscure 3-lobo, lobis papillois; ovula in quoque loculo 2-seriata, 8, erecta. Fructus ligneus, indehiscens, exocarpio crasso, suberoso interdum transverse fisso, endocarpio ligneo tenui indurato. Semina abortu solitaria, oblongo-linearia, testa crustacea, albumine carnoso.

Genus novum *Meliiodendro* Handel-Mazzetti ovario semiinfero, fructu ligneo indehiscente affine, sed floribus in cymos axillares dispositis, ovulis in quoque loculo 2-seriatis bene distincta.

This new genus is named in honor of Professor J. G. Jack of the Arnold Arboretum of Harvard University, whose knowledge of Chinese botany, and his zeal and enthusiasm in helping Chinese students in their studies will leave a permanent influence in their work.

Sinojackia xylocarpa, sp. nov.

Arbor 6-metralis, trunco ambitu 1.5 m., ramis erecto-patulis. Folia membranacea, obovata, breviter acuminata, basi cuneata vel subrotundata, obsolete calloso-serrulata, supra glabra, subtus costâ mediâ obsolete stellato-pubescente exclusâ glabra, 3-7, saepius 6 cm. longa et 2-4, saepius 3.5 cm. lata; petioli 5 mm. longa, stellato-pilosi. Cymae axillares, 3-5-florae; flores late campanulati vel subrotati, ad 2.5 cm.

diam.; pedicelli penduli, stellato-pilosi, articulati, ad 3 cm. longi; calycis tubus turbinatus, extus stellato-pilosus, dentes triangulares, acuti, extus stellato-pilosi, intus hirtelli; corollae segmenta oblongo-elliptica, obtusa, 12 mm. longa, 6 mm. lata, extus dense stellato-pilosula, intus adpresse stellato- et simpliciter pilosula; stamina 12-14, interdum 10, filamentis inferne dilatatis et complanatis, superne attenuatis, stellato- et simpliciter pilosa, 4 mm. longi, cum connectivo viridi continua; antherae oblongae, luteae, obtusae, dense pilosae, pilis stellatis conspersae, 4 mm. longi; ovarium oblongo-ellipticum, glabrum, 6 mm. longum, 3-4-locularae; stylus subulatus, 8 mm. longus, stigmatе terminali obscure 3-loba, lobis minute papillois; ovula in quoque loculo 2-seriata, 8, erecta, saepius pro parte abortiva. Fructus ligneus, indehiscens, apex late conicus, ceterum obovoideus, cinereo-brunneus, verrucosus, apice acuto 7 mm. longo incluso 1.9 cm. longus, 1.3 cm. diam., exocarpio suberoso, saepius irregulariter transverse fissus 3.5 mm. crasso, endocarpio ligneo 1.5 mm. crasso; semina in quoque fructu solitaria, oblongo-linear, 1 cm. longa, testa castaneo-brunnea coriacea, albumine carnoso.

KIANGSU: Nanking, in woods, *R. C. Ching*, no. 3458, Sept. 25, 1927, *Y. L. Keng*, no. 1376, April 22, 1928 (type).

The discovery of a new genus in an open country as Nanking, within a few miles of the metropolis, is a rare occurrence. Only one small tree has been located so far. In late April the tree is loaded with showy pendulous white flowers. At first glance it looks more like a rosaceous tree than a *Styrax*, but when the flowers are examined in detail, its affinity is at once revealed. Its inferior ovary and indehiscent wingless fruit exclude it from such genera as *Styrax*, *Pterostyrax*, *Halesia* or *Alniphyllum*, and I can only suggest its affinity to Handel-Mazzetti's *Meliiodendron*, from which it differs in several characters. That the exocarp of the old fruit is irregularly transversely fissured is also an interesting character not known in other genera of this family.

NOTES ON CHINESE BERBERIS

J. T. P. BYHOUWER

While identifying the *Berberis* specimens collected by J. F. Rock in Northern China, and comparing it with the material in the herbarium of Arnold Arboretum, I found among the indetermined material two new species and a new variety. The diagnoses of these *Berberis* will be found below, followed by a list of those species, of which the geographic distribution has become more completely known since the publication of C. Schneider's *Weitere Beiträge zur Kenntnis der chinesischen Arten der Gattung Berberis* (in *Oesterr. Bot. Zeitschr.* LXVI, 315-326 [1916], LXVII, 15-32, 135-146, 213-228, 284-300 [1918]) and A. Rehder's *Enumeration of the ligneous plants of Northern China, Berberidaceae* (in *Jour. Arnold Arb.* v. 138-144 [1924]).

***Berberis reticulata*, spec. nov.**

Frutex ad 2-metralis; ramuli annotini et biennes purpurascens, glabri, angulati, vetustiores cinereo-brunnescentes; internodia 1.5–4 cm. longa; spinae pleraeque simplices, parvae, ad 9 mm. longae. Folia ad 6 fasciculata, spathulato-obovata, tenuia, apice obtusa vel rotundata, mucronulata, basim versus in petiolum 2–12 mm. longum decurrentia, margine anguste aequaliter spinoso-dentata, spinis 1 mm. longis, supra viridia, subtus cinerea, utrinque distincte reticulata, petiolis inclusis 2.0 : 0.9–4.0 : 1.6–5.6 : 2.1 cm. magna. Inflorescentiae breviter corymboso-racemosae, ad 8-florae, 1.4–2.0 cm. longae, glabrae; pedicelli 4–7 mm. longi, basi bracteis acuminatis 1 mm. longis suffulti; flores flavi, extus rubescentes, satis magni (circiter 11 mm. diam.), sepala interna late obovata, 7 mm. longa, petalis obovatis apice emarginatis basi nectariis ovalibus instructis majora; stamina normalia; ovaria ovulis 2 sessilibus instructa. Fructus ovoides, rubri, leviter pruinosi, ad 11 : 8 mm. magni, stigmatibus sessilibus coronati.

NORTHERN CHINA: without precise locality, Wm. Purdom, no. 644 (seeds only); plants raised from this seed cultivated in the Arnold Arboretum under no. 20081. Specimens examined: *A. Rehder* May 11 and 21, 1927 (type), May 15, 1918, May 16, 1919, May 15, 1922, Sept. 14, 1922, *L. V. Schmitt*, Sept. 23, 1926.

This species seems to be related to *Berberis Silva-Taroucana* Schneider and *B. Mouillacana* Schneider of the section *Tschonoskyanae*, and *Berberis Boschanii* Schneider and *B. Lecomtei* Schneider of the section *Sinenses*. The leaf-texture and the rather big fruits resemble those of species of the former, the short inflorescence, the small spines and the red-tinged flowers suggest the latter section, in which it could best be placed. It differs from all species mentioned in the corymbose inflorescence, the larger flowers and the strongly reticulate leaf.

***Berberis Cavaleriei* var. *pruinosa*, var. nov.**

Berberis sp. Rehder in Jour. Arnold Arb. VIII. 108 (1927).

A typo recedit foliis subtus albescentibus, pruinosis.—Ramuli flavi, angulati; spinae trifidae, flavescentes, mediae ad 2.5 cm. longae. Folia tenuiter coriacea, oblonga, 3 : 1 ad 5 : 1.4 cm. magna, apice acuta, basi cuneata in petiolum ad 3 mm. longum attenuata, margine distanter spinuloso-serrata (dentibus 0.5–1 mm. longis 1–3 pro 1 cm.), superne viridia, subnitentia, supra albopruinosa, utrinque laxe nervata. Inflorescentiae fasciculatae, 6–12-florae. Fructus pruinosi, stylo brevi excluso 7 mm. longi et 4 mm. crassi, semina 2; pedicelli 14–18 mm. longi.

SOUTHERN ANHWEI: Chang gon shan, Wu yuan, thickets in ravine, *R. C. Ching*, no. 3248 (type), Aug. 17, 1925 (shrub 1 m. tall, leaves evergreen, dull shining green, fruit greenish, pendulous).

This variety seems to be the extreme eastern form of the widely distributed species.

Berberis densifolia, spec. nov.

Frutex 0.3–1.2 m. altus; ramuli juniores geniculati, sulcato-angulati, flavi, vetustiores flavescenti-cinerascentes; internodia 1–2(–4) cm. longa; spinae tripartitae, flavae, mediae ad 1.3 cm. longae. Folia ad 6 fasciculata, crasse coriacea, cuneata vel oblanceolata, apice sensim acuta, mucronata, basi sensim in petiolum 1–2 mm. longum attenuata, margine saepe revoluta, versus apicem dentibus 1–3 munita, minora 1 cm. longa, 5–6 mm. lata, majora 3 cm. longa, 7–10 mm. lata, supra viridia, subtus albo-pruinosa vel in sicco ferruginea, indistincte laxe reticulata. Flores nondum vidi. Fructus ad 3 fasciculati, ovals, circiter 7–9 : 6 mm. magni, stylo brevi coronati, atrocoerulei; pedicelli ad 7 mm. longi; semina 3.

FORMOSA: Prov. Nanto: Mount Kiraishui, alt. 3500–3600 m., E. H. Wilson, no. 10074 (type), Mar. 6, 1918 (bush 0.3–1.2 m., fruit blue-black).

The nearest relatives among the Chinese species appear to be *Berberis triacanthophora* Fedde, which has, however, reddish-brown, round twigs and much longer flower-stalks and *B. replicata* W. W. Smith, which differs in having round twigs, longer flower-stalks and smaller fruits.

The other Formosan species can all be easily distinguished: *Berberis aristato-serrulata* Hayata by the finely serrulated leaf-margin, *Berberis Kawakamii* Hayata by the larger, more strongly reticulate and non-pruinose leaves and the 10–15-flowered inflorescences with longer pedicels, *Berberis brevisepala* Hayata by the uniovulate ovaries, the red twigs and the larger and wider leaves, *Berberis mingtsensis* Hayata by the very large, strongly reticulate leaves.

Berberis densifolia Wilson no. 10074 has been distributed as *Berberis Kawakamii* Hayata.

Berberis Cavaleriei Léveillé in Fedde Rep. Spec. Nov. ix. 454 (1911).—Schneider in Oesterr. Bot. Zeitschr. LXVII. 140 (1918).

Berberis Griffithiana Léveillé Fl. Kouy-Tcheou. 48 (1914).—Non Schneider.

The type-specimens were collected in Kweichow by J. Cavalerie (no. 3209), it has now been found also in Chekiang (*R. C. Ching*, Plants of Chekiang, no. 2336), Hunan (*Handel-Mazetti*, no. 438, inter urbes Linling and Sinning, alt. 200–500 m. and no. 552, ad minas Hsikwang-schan prope urbem Hsinhwa, in fruticetis, alt. 600–800 m.) and the variety *pruinosa* Byhouwer in Anhwei (*R. C. Ching*, no. 3248).

Berberis Kawakamii Hayata in Jour. Coll. Sci. Tokyo xxx. Art. i. 24 (1911); Icon. Pl. Formos. i. 40, t. 9 (1911); l. c. iii. 4 (1914).—Kanehira, Formos. Trees 32, fig. (1917).—Schneider in Oesterr. Bot. Zeitschr. LXVII. 140 (1918).

The original material was found by T. Kawakami on Mt. Morrison, alt. 2700 m.; among E. H. Wilson's specimens three are from the same province (no. 9720, Arisan, prov. Kagi, alt. 2333–2933 m., no. 10910, Arisan to Mt. Morrison, prov. Kagi, alt. 2666–3666 m., and no. 10952,

Arisan to Mt. Morrison, alt. 3666 m.), and one from province Nanto (no. 10060, from Nanto to Noko via Musha, alt. 2666–3166 m.).

Berberis silvicola Schneider in Sargent Pl. Wils. III. 438 (1917).

The type-material was found by E. H. Wilson in western Hupeh (no. 2879); it appears to grow also in Yunnan (G. Forrest, no. 18195), so probably it is still to be found in Szechuan or Kweichow.

Berberis diaphana Maximowicz in Bull. Acad. Sci. St. Pétersb. XXIII. 309 (1876); in Mém. Biol. IX. 712 (1877); Fl. Tangut. 32, t. 8, fig. 1–7 (1889); in Act. Hort. Petrop. XI. 42 (1890).—Hemsley in Jour. Linn. Soc. XXIII. 31 (1886).—Schneider in Bull. Herb. Boiss. sér. 2, v. 398 (1905); VIII. 195 (1908); in Oesterr. Bot. Zeitschr. LXVI. 321 (1916).—Fedde in Bot. Jahrb. XXXVI. beibl. LXXXII. 44 (1905).—Rehder in Sargent, Trees & Shrubs, II. 19, t. 109 (1907); in Jour. Arnold Arb. v. 139 (1924).

Berberis yunnanensis Hutchinson in Bot. Mag. CXXXIV. t. 8284 (1908).—Non Franchet.

Discovered in Kansu by N. Przewalski, this species has been collected in the same province by G. N. Potanin, R. C. Ching (Wulsin Expedition no. 432, 556, 961) and J. F. Rock (no. 12634, 13474, 13525, 13529, 13574). In Shensi it was found by G. Giraldis (Fedde l.c.), in Szechuan by Farges (Eastern Szechuan, Tchen-keou-tin, 1893) and E. H. Wilson (Western Szechuan, no. 930, 4190, 2865, 4170). Recent material shows that the range of the species extends further south-west and west; it has been found by Handel-Mazetti in northwestern Yunnan (no. 8117, ad confines tibeticas sub jugo Dokerla, 28° 15', in regionis frigide temperatae abieto-salicetis, alt. 3800–4150 m.) and by J. F. Rock in eastern Tibet (no. 13263, 13272, 13273, 14100, 14108, 14115).

Berberis aemulans Schneider in Sargent, Pl. Wils. III. 434 (1917); in Oesterr. Bot. Zeitschr. LXVI. 321 (1916).

Berberis diaphana Schneider in Sargent, Pl. Wils. I. 353 (1913), ex parte.—Non Maximowicz.

The type-locality for this species is western Szechuan, Wa-shan (E. H. Wilson, no. 930), other material collected by E. H. Wilson comes from the same province (no. 3145, 4190, Sungpan). It appears to grow also in northwestern Yunnan, as shown by the following specimens of G. Forrest; no. 19521, margins of pine forests on the Mekong-Salwin divide, lat. 27° 54', long. 98° 50', alt. 3000–3300 m. and no. 20295, Mekong-Salwin divide, Sie-la, lat. 28°, long. 98° 40', alt. 4000–4300 m.

Berberis faxoniana Schneider in Oesterr. Bot. Zeitschr. LXVI. 325 (1916).

About the geographic distribution of this species nothing was known, as Schneider described it from material grown in Arnold Arboretum and perhaps introduced from Vilmorin's nurseries. The numbers 13829, 16554 and 18992 of the Plantae Forrestianae from Yunnan appear to be

Berberis Faxoniana, but the labels do not give any clue in which part of Yunnan this material has been collected.

Berberis Wilsonae var. *subcaulialata* Schneider in Oesterr. Bot. Zeitschr. LXVII. 298 (1918).

Berberis subcaulialata Schneider in Fedde Rep. Spec. Nov. vi. 267 (1909); in Sargent, Pl. Wils. i. 369 (1913).—Hesse in Mitt. Deutsch. Dendr. Ges. XXII. 266 (1914).—Bean in Gard. LXXXV. 501, fig. (1921).

Berberis Coryi Veitch, New Hardy Pl. W. China, 7 (1913).

This variety was first collected by E. H. Wilson in western Szechuan (no. 1267), but it is found also in western Yunnan, as shown by the specimens of *E. E. Maire* (no. 67, coteaux arides, rocaillieux derrière Tong-tchouan, alt. 2990 m., no. 179, collines arides, rocailleuses de Pokio, alt. 2990 m.) and *G. Forrest* (no. 18516, Yunnan, no. 20179, side valleys on the mountains N. E. of Atuntze, lat. 28° 35' N., long. 99° 10' E., alt. 3300–3600 m., N. W. Yunnan, and no. 20378, ravines on the Mekong-Yangtze divide, lat. 27° 36' N., long. 99° 10' E., alt. 3600 m., N. W. Yunnan).

Berberis aggregata var. *Prattii* Schneider in Sargent, Pl. Wils. III. 443 (1917); in Oesterr. Bot. Zeitschr. LXVII. 296 (1918).

Berberis polyantha Hemsley in Jour. Linn. Soc. Bot. XXIX. 302 (1892), quoad specim. *Prattii* no. 80.

Berberis Prattii Schneider in Sargent, Pl. Wils. i. 376 (1913).—Sprague in Bot. Mag. CXL. t. 8549 (1914).

Berberis integerrima Hort. Veitch, pro parte, ex Schneider l. c. (1918), pro synonym.—Non Bunge.

Berberis Geraldii Veitch, New Hardy Pl. W. China 7 (1913), nomen.

Berberis brevipaniculata Bean, Trees and Shrubs i. 236 (1914).—Non Schneider.

The range of this species appears to extend from western Szechuan, where it was discovered (*E. H. Wilson*, no. 1261 type, 1050 A, 1073, 1300, 4173) into northwestern Yunnan (*G. Forrest*, no. 20292, on Dokerla, Mekong-Salwin divide, lat. 28° 20' N., long. 98° 40' E., alt. 3600 m.).

Berberis Caroli Schneider in Bull. Herb. Boiss. sér. 2. v. 459 (1905).

Berberis integerrima var. *stenophylla* Maximowicz, Fl. Tangut. 29 (1889).

Non *Berberis stenophylla* Lindley, nec Hance.

Berberis integerrima Maximowicz Enum. Pl. Mongol. 33 (1889), quoad specim. ex Ordos.

As mentioned in the enumeration of the *Berberis* of the Rock collection, two specimens, no. 13314 from northwestern Kansu and no. 14362 from eastern Tibet seem to belong to *Berberis Caroli* rather than to the closely related *Berberis Vernae* Schneider. This means a much wider range for *B. Caroli* which was discovered by *G. N. Potanin* in Ordos (southern Mongolia, 1884), and since then no typical material has been found.

Berberis Silva-Taroucana Schneider in Sargent, Pl. Wils. i. 370 (1913); in Oesterr. Bot. Zeitschr. LXVII. 217 (1918).—Hesse in Mitt. Deutsch. Dendr. Ges. XXII. 266 (1914).

The type-specimen of this species is *E. H. Wilson's* no. 2860, from

Chiu ting shan, western Szechuan; other material from the same province constitutes the nos.: 955, 1012, 1012A, 1059, 2857, 2858, 2861, 2863A, 2867, 3151A, 4153, 4288, 4726. The area in which the species occurs appears to be much larger, as shown by Wilson's no. 645, collected in western Hupeh, and *J. F. Rock's* nos. 12473, 13522 and 14913 from southwestern Kansu.

Berberis Mouillacana Schneider in Sargent, Pl. Wils. I. 371 (1913); in Oesterr. Bot. Zeitschr. LXVII. 217 (1918).

Berberis Mouillacana was known only from western Szechuan, in the specimens: *E. H. Wilson* no. 1039 (type), 1041, 1283, 4123. The specimens collected by *J. F. Rock* demonstrate its occurrence in southwestern Kansu, north of the original area (*J. F. Rock*, nos. 12303, ?12429, 12443, ?12458, 13202, 14898).

Berberis Boschanii Schneider in Sargent, Pl. Wils. I. 369 (1913); in Oesterr. Bot. Zeitschr. LXVII. 225 (1918).

This is another case of a *Berberis*, discovered in western Szechuan (*E. H. Wilson*, no. 1166, type, 3156), which appears to extend northward into Kansu (*R. C. Ching*, Wulsin Expedition, no. 86 and 773, southwestern Kansu; *J. F. Rock*, no. 12513, southwestern Kansu and no. 13300 and 13316, northwestern Kansu) and into eastern Tibet (*J. F. Rock*, no. 13261, 13274, 13366, 13920, 13948, 14073, 14079).

Berberis Lecomtei Schneider in Sargent, Pl. Wils. I. 373 (1913); in Oesterr. Bot. Zeitschr. LXVII. 225 (1918).

? *Berberis heteropoda* Franchet in Bull. Soc. Bot. France, XXXIII. 386 (1896).—Non Schrenck.

Berberis sinensis var. *typica* Franchet, Pl. Delav. 35 (1889).—Non Poiret.

Berberis Thunbergii var. *glabra* Franchet, l. c. 35 (1889).—Schneider in Bull. Herb. Boiss. sér. 2. VIII. 204 (1908).

Berberis pallens Diels in Not. Bot. Gard. Edinb. VII. 342 (1912).—Non Franchet.

This species was known to occur in Yunnan, the type-material was collected in that province by Delavay (no. 1047), later more specimens were found by *Delavay* (no. 2247 and specimens from Kou toui and Li-chiang range) and by *G. Forrest* (nos. 17143, 20621, 20802, 2271 and 2343). Schneider described two specimens from southern Szechuan (nos. 1503 and 1536), found by himself in 1914, as probably belonging to *B. Lecomtei*. A confirmation of the occurrence in this province is given by no. 22395 of *G. Forrest*: side valleys of the mountains southeast of Mu-li, lat. 27° 50' N., long. 101° E., alt. 3300–3600 m., southwestern Szechuan.

Berberis dasystachya Maximowicz in Bull. Acad. Sci. St. Pétersb. XXIII. 308 (1877); in Mém. Biol. IX. 711 (1877); Fl. Tangut. 30, t. 5, fig. 1–7 (1889); in Act. Hort. Petrop. XI. 41 (1890).—Hemsley in Jour. Linn. Soc. XXIII. 3 (1886).—Kanitz in Szechenyi, Keletazs. Utján. Tudom. Ered. II. 794 (Pl. Enum. 5) (1891); in Szechenyi, Wiss. Ergebn.

Reise Ostas. II. 681 (1898).—Bretschneider, Hist. Eur. Bot. Disc. China, 971 (1898).—Schneider in Bull. Herb. Boiss. sér. 2, v. 664 (1905); VIII. 262 (1908); in Sargent, Pl. Wilson III. 442 (1917); in Oesterr. Bot. Zeitschr. LXVII. 287 (1918).—Fedde in Bot. Jahrb. XXXVI. beibl. LXXXII. 43 (1905).—Rehder in Jour. Arnold Arb. v. 142 (1924).

Berberis heteropoda var. *oblonga* Maximowicz in Act. Hort. Petrop. XI. 41 (1890).—Non Regel.

? *Berberis dolichobotrys* Fedde in Bot. Jahrb. XXXVI. beibl. LXXXII. 41 (1905).
Berberis vulgaris var. *dasystachya* Voss in Putlitz & Meyer, Landlexicon v. 709 (1913).

Originally described from material collected by N. Przewalski in Kansu, the species was found in that province by all subsequent collectors: *G. N. Potanin* (see Schneider, l. c. 1905), *L. Loczy* (see Kanitz, l. c.), *W. Purdom* (no. 1014), and *J. F. Rock* (no. 12207, 12465, 12504, 12808, 12885, 13291, 13514, 13561, 14680). Meanwhile it had been discovered in several adjacent provinces: in Hupeh by *A. Henry* (no. 6816), *E. H. Wilson* (no. 307), and *W. Y. Chun* (no. 3910, 4219), in Szechuan by *Von Rosthorn* (no. 962), *Farges* (see Schneider, l. c. 1918) and *E. H. Wilson* (no. 4203), in Shensi by *G. Giraldis* (no. 51, see Fedde l. c.). So it was to be expected also in eastern Tibet, especially in the Kokonor region, between western Szechuan and northwestern Kansu, where it has now been found by *J. F. Rock* (no. 13262).

TWO NEW GENERA AND NEW COMBINATIONS OF RUTACEAE-AURANTIEAE FROM PAPUA

(REVISIO AURANTIACEARUM II)

TYÔZABURÔ TANAKA

Echinocitrus,¹ gen. nov.

Flores mediocres, axillares, solitarii; calyx cupulatus, basi attenuatus, punctatus, lobis 5 ovato-deltoideis glabris; petala 5, imbricata, oblongo-obovata, basi plus minusve attenuata, punctata; stamina 10, filamentis filiformibus liberis, antheris linearibus obtusis; ovarium lageniforme, stipitatum, glabrum, apice in stylum attenuatum, stylo staminibus paulo longiore. Bacca obovoidea, frequenter basi elongata, punctata, laevissima, corticosa, 5-locularis; pulpa vesiculari nulla, succo exiguo; semina biseriata, reniformia, compressa.—Frutex ramosissimus, ramis patentibus saepissime pendulis, spinosissimis, spinis geminatis, puberulis. Folia alterna, ovato-rhomboidea, obsolete punctata, nervis utrinque vix prominulis, breviter petiolata.

Genus *Triphasiae* affine, floribus pentameris longe pedicellatis, foliis simplicibus irregulariter crenulatis, fructibus obovoideis magnitudine cerasi.

Species unica, *Paramignya Brassii* C. T. White.

¹ From the Greek, *tychos*, hedgehog, and *Citrus*.

Echinocitrus Brassii, comb. nov.

Paramignya Brassii C. T. White in Jour. Arnold Arb. vii. 231 (1926).

This exceedingly spiny Papuan species of the Citrus tribe was only once collected by L. J. Brass in Rigo, British New-Guinea, and the specimens are deposited in the Arnold Arboretum. It is very unlike *Paramignya*, which is a vine with solitary curved spines and large elliptic leaves having somewhat motile petioles, but the present species is closely allied to *Triphasia* in its puberulent, somewhat zigzag branches armed with paired sharp spines, in the thin leaves without prominent reticulation, solitary flowers with cupulate calyx and slender petals, free filiform filaments and linear anthers, stalked ovary narrowed into a long style, and in the few-celled bright-colored berry without pulp-vesicles. It is, however, distinct from *Triphasia* primarily in having 5-merous flowers, while both species of *Triphasia* (*T. trifolia* and *T. grandifolia*) have always 3-merous flowers. This species is far more spiny than *Triphasia*, especially at the juvenile stage, and the fruit is very much larger and mostly pointed at the base, not at the apex, the segments containing distinctly biseriate seeds. The leaves are crenate, not entire, and the pedicel of the fruit is very much elongated: calyx-lobes are distinct and ovoid-deltoid, not so broad and flat-triangular as in *Triphasia*. The calyx lacks pubescence but is only minutely ciliate on the margin. The appearance of the fruit is very much like an oval kumquat (*Fortunella margarita* Swingle), but it lacks pulp-vesicles.

Species of true *Paramignya* do not occur in Malay Archipelago, except *P. andamanica* (King) Tanaka which was once collected in Sumatra and Sumbawa.

Monanthocitrus,¹ gen. nov.

Flores majores vel minores, solitarii, axillares, breviter pedicellati; calyx cupulato-scutellatus, 5-lobatus, lobis triangularibus subpatentibus glabris; petala 5, imbricata, oblongo-ovata vel lanceolata, punctata; stamina libera, filamentis 8-10 tenuibus, antheris oblongis; ovarium globosum vel substipitato-obovoideum, disco annulari vel subpentagono, stylo crasso vel elongato, stigmatibus subpentagono. Bacca globosa vel obovata, 5-locularis, cum pulpa vesiculari.—Frutex, ramis teretibus gracilibus, spinis 2 in foliorum axillis. Folia oblongo-lanceolata, sub-integra vel crenulato-subdentata, breviter petiolata.

Genus *Wenzeliae* affine, foliis acuminato-caudatis, nervis subtus et supra magis prominentibus, distinctissime anguste reticulatis; ramis spinosis, spinis geminatis acutissimis.

Species typica, *Citrus cornuta* Lauterbach.

Monanthocitrus cornuta, comb. nov.

Citrus cornuta Lauterbach in Lorentz, Nova Guinea, viii. 292 (1910).

Type specimen: Rijks Herbarium, Leiden (*Versteeg* no. 1551).

The specific name was derived from an abnormal fruit which bore 5

¹ From Greek, *μονάθος*, one-flowered, and *Citrus*.

persistent styles. Later material (Rümer no. 633) deposited in the Leiden Herbarium has normal fruits with one styler point, and was later referred to by Lauterbach in a supplementary note (l. c. 825 [1912]). The flowering specimen deposited in the herbarium at Berlin-Dahlem shows that the species is far removed from the genus *Citrus* and much more closely related to the genus *Wenzelia*, first described from the Philippines.

Wenzelia is characterized by solitary axillary flowers with slender pedicel, 5 petals, 5 calyx-lobes and 10 stamens. The leaves of *Wenzelia* are large, with obscure reticulation and are borne on slender branchlets unarmed or rarely armed with single spines in the axils. The type of *Monanthocitrus* in its essential characters approaches very much *W. brevipes* Merr., but in appearance it is closer to *Citrus inodora* Bail., having distinctly reticulated leaves, paired sharp spines at each node and short-pedicelled roundish fruits resembling a lime (*Citrus aurantifolia* Swingle). The ovary of *Monanthocitrus* contains only 2 ovules in each locule, while *Wenzelia* contains 6.

***Monanthocitrus grandiflora*, comb. nov.**

Citrus grandiflora Lauterbach l. c. 292.

This species is closely allied to the former, but it has very large petals measuring about 35 mm. in length, while those of the former only attain to 5 mm. A sterile specimen deposited in Leiden Herbarium sufficiently shows its proper systematic position and relation to the former species, although the only flowering material (in Buitenzorg) has not been examined at this time.

***Wenzelia dolichophylla*, comb. nov.**

Citrus dolichophylla Schumann & Lauterbach, Fl. Deutsch. Schutzgeb. Südsee, 377 (1901).

Type specimen: Herbarium of Botanisches Museum, Berlin-Dahlem. (Lauterbach no. 3108).

This species differs from the type of the genus (*Wenzelia brevipes* Merrill in Philip. Jour. Sci. x. Bot., 272 [1915]) in the narrower leaves with the lateral veins diverging at about right angles. The solitary axillary flower has a slender pedicel gradually merging into an almost funnel-shaped small calyx, the limb of which remains in cupular form until fruiting time. In the case of *Monanthocitrus cornuta*, the calyx spreads open in the fruiting stage with its lobes recurved at the end. The fruit of this species is ellipsoid, very thin-skinned, and entirely lacks pulp-vesicles.

***Wenzelia paludosa*, comb. nov.**

Citrus paludosa Lauterbach in Bot. Jahrb. LV. 263 (1918).

Type specimen: Herbarium of Botanisches Museum, Berlin-Dahlem. (Ledermann no. 7173).

This species has occasionally simple spines at the node, while the two other species are entirely unarmed. The leaves are still narrower than

those of the former species, and the texture is much thinner with equally obsolete reticulation. It also has a similar funnel-shaped calyx with narrow not spreading lobes. The fruit is ovoid, narrowed at the base and distinctly acuminate at the apex, containing about six seeds in each locule. The lateral veins of the leaf spread at a rather acute angle, and are sometimes irregularly branching as in *W. brevipes*.

The three species of *Wenzelia* can be easily distinguished as follows:

Leaves oblong, lateral veins at more or less acute angles, subcoriaceous: fruits obovoid with round apex and narrowed base.....*W. brevipes*.
Leaves lanceolate.

Leaves subcoriaceous, lateral veins nearly at right angles to the midrib: fruit ellipsoid with the ends nearly rounded.....*W. dolichophylla*.

Leaves almost chartaceous, lateral veins at somewhat acute angles: fruit ovoid, with pointed ends.....*W. paludosa*.

The last species alone has pubescence on calyx, pedicel, style and the upper part of ovary, while the others are glabrous.

The relationship of the genera *Microcitrus*, *Echinocitrus*, *Monanthocitrus*, *Wenzelia* and the new yet unnamed genus representing *Citrus inodora* Bailey, is not very clear, since the present herbarium material is still very scanty. It is, however, apparent that in the floral characters *Wenzelia* is most closely related to *Echinocitrus* and *Triphasia*, as is shown by the stalked, 5-celled ovary with less developed disk, large stigma continuous into the style, 10 filaments of equal length, with oblong anthers, and thin-skinned fruits without pulp-vesicles and containing (except in *Triphasia*) biseriate seeds. In the texture of the leaf and particularly in the inconspicuous reticulation *W. paludosa* approaches very much the genera above mentioned, but the genus already lost the primitive paired thorns, as they still exist in *Monanthocitrus* and *C. inodora*. The genus *Monanthocitrus* would appear to be a close ally of *Wenzelia* if its fruit lacked pulp-vesicles. The presence or absence of pulp-vesicles, not mentioned by the authors of *C. dolichophylla* and *C. paludosa*, is however of great importance in judging their exact relationship with *Microcitrus*, which has small leaves with distinct venation, somewhat terete branches armed with simple spines, minute, distinctly stalked fruits with a very small number of segments and globose pulp-vesicles. Only *Citrus inodora* Bailey, or, as it has been called, *Microcitrus inodora* Swingle in Jour. Wash. Acad. Sci. v. 577 (1915), is very near to *Monanthocitrus*, in its distinct venation of the large leaf, paired thorns, and in the comparatively large, short-stalked solitary fruits. Bailey (in Bot. Bellenden-Ker Exped. 34 [1889]) unfortunately failed to mention the presence of pulp-vesicle in *C. inodora*, but on account of the numerous stamens amounting to about 30 it seems to be a species of a higher position. If it lacks pulp-vesicles, its relation will be similar to that between *Atalantia* and *Oxanthera*, the former having 10 filaments and pulp-vesicles, and the latter having more than 10 stamens and larger fruit without pulp-vesicles. To make the relationship of the different genera clearer the following chart may be helpful.

Unifoliolate groupMain group with paniculate inflorescence.....	<i>Atalantia</i> , <i>Oxanthera</i> , etc.
Group with solitary flowers.....(reticulation conspicuous).....	<i>Monanthocitrus</i> (paired thorns)
		<i>Citrus inodora</i> (paired thorns)
		<i>Microcitrus</i> , etc. (single thorn)
(reticulation inconspicuous).....	<i>Wenzelia</i> (single thorn)
		<i>Echinocitrus</i> (paired thorns)
		<i>Triphasia</i> (paired thorns, leaves sometimes trifoliolate)
Pinnate-leaved group.....	<i>Hesperethusa</i> , <i>Citriopsis</i> , <i>Poncirus</i> , <i>Citrus</i> , etc.

***Atalantia disticha* (Blanco) Merr. var. *paniculata*, comb. nov.**

Atalantia paniculata Warburg in Bot. Jahrb. xiii. 340 (1891).

Atalantia maritima Merrill in Philip. Jour. Sci. ix. Bot. 295 (1914).

Type specimen: Herbarium of Botanisches Museum, Berlin-Dahlem. (Warburg from Ceram-laut, no. 20123).

In its general characters this variety agrees with the Philippine *A. disticha*, but the leaves are larger, less crowded, and the reticulation much less close; the inflorescence is a more wide-spreading compound panicle. This variety is common in Java, Key, Sumbawa, Timor, north Borneo, extending to Mindanao, Negros, Panay, etc. It never occurs in Luzon.

***Clausena Harmandiana* Pierre ex Guill. var. *papuana*, comb. nov.**

Clausena papuana Lauterbach in Bot. Jahrb. lv. 260 (1918).

Clausena hirta Ridley in Jour. Fed. Malay. Stat. Mus. x. pt. 2, 85 (1920).

Type specimen: Herbarium of Botanisches Museum, Berlin-Dahlem (Schlechter no. 18476).

Pierre's *Glycosmis Harmandiana* (Fl. Forest. iv. fasc. 18, following pl. 285, 1893), based upon Harmand's specimen from Cochinchina (no. 3875) is similar to the specimen collected by Leschenault in Java, and both are correctly transferred to *Clausena* by Guillaumin (*in* Lecomte's Not. Syst. i. 219 [1910]), although Thorel's material from Laos, considered to belong to the same species represents partly an entirely different new species (*C. Guillauminii* Tanaka in sched.). The typical *C. Harmandiana* has pentamerous flowers, two rows of large oil-cell dots on the surface of the ovary, a rather contracted style, and a less hairy rachis bearing only about 5 to 7 leaflets. The present variety has a somewhat elongated style and ovary, and the whole plant is hairy. The ovary seems to have three rows of enlarged oil glands, but close examination will show that it has only two rows, having a wide but slightly elevated naked space between the rows. The flowers of the Papuan specimens are almost always tetramerous, with a few pentamerous flowers mixed in. It has a long rachis with more pairs of leaflets than the type of the species. The form described from Peninsular Sima as *C. hirta*, is almost identical with the present variety, except that it has nearly constantly 5-merous flowers.

TAIHOKEI IMPERIAL UNIVERSITY

TAIWAN, JAPAN



PODOCARPUS FALCATA R. Br.

Tree in Natal, 24 meters tall, the trunk 3 meters in girth